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Full Name of Author — Nom complet de l'auteur
MAIGARI A. MUSA

Date of Birth — Date de naissance 02 NOVEMBER 1952	Country of Birth — Lieu de naissance KANO - NIGERIA

Permanent Address — Résidence fixe
DURUMIN ZUNGURA, HOUSE No 221A, KANO-CITY,
KANO-STATE, NIGERIA

Title of Thesis — Titre de la thèse
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A PREVOCATIONAL EDUCATION PROGRAM FOR VISUALLY IMPAIRED IN KANO STATE, NIGERIA

by

Ⓒ MAIGARI A. MUSA

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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(Signed)

PERMANENT ADDRESS:

Durumin Zungura
House No. 221A, Kano City
KANO STATE, Nigeria

DATED August 18, 1981

THE UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "A Pre-vocational Education Program for Visually Impaired in Kano State, Nigeria," submitted by Maigari A. Musa in partial fulfilment of the requirements for the degree of Master of Education in Vocational Education.

Henry R. Ziel
Supervisor

D. R. Young

Jean A. Young

Date August 18, 1981

ABSTRACT

Nigeria is just making a start in putting the recommendations for the visually impaired, made in the final report of the implementation committee for the National Policy on Education (1978), into practice. The Nigerian government sets aside funds for the implementation of innovative programs for the visually impaired. The purpose of this study was to develop a pre-vocational education program at the secondary school level for visually impaired students, for implementation in Kano State secondary schools.

Data were drawn from publications on education for visually impaired, including books, journal articles, magazine articles, and Kano State secondary syllabi. Also used were the pre-vocational/vocational education program guides and related information obtained from the United States officials responsible for educating the visually impaired in vocational education.

A directory of agencies serving the visually handicapped in the United States was used to identify officials who took part in the study. Additionally, other officials were identified in the literature pertaining to educational programs for the visually impaired. A total of thirty-nine (39) officials were identified.

Two sets of letters were prepared and mailed to the

identified officials. The first set was mailed to nine selected state directors serving the visually impaired. The purpose of the letter was to request the directors to supply the researcher with the names and addresses of institutions that offer pre-vocational education programs for the visually impaired at the secondary school level.

Lists of names and addresses of administrators of institutions that offer pre-vocational/vocational education programs obtained from the directors amount to a total of 30 officials, including those identified in the literature. The second set of letters was sent to the 30 officials identified requesting program guides, course of study, course content and other related materials that are used in educating the visually impaired in pre-vocational/vocational education.

Program guides and related materials on pre-vocational/vocational education programs for the visually impaired received in the course of the study were analysed and conclusions drawn. On the basis of the investigation, the following observations appeared valid:

1. Pre-vocational/vocational education programs for the visually impaired are to be as near as possible to such programs for non-visually impaired students.
2. Work experience programs are an essential part of pre-vocational/vocational education programs for the visually impaired at the secondary school level.
3. The visually impaired individuals should be mainstreamed

into the regular classroom and be educated together with non-visually impaired students.

4. Pre-vocational/vocational education programs for the visually impaired should include supplementary programs (itinerant program; teacher-consultant) meshed in the pre-vocational program or offered separately during the summer or on weekends.

On the basis of the data and findings of the research, conclusions of this study were formulated and recommendations were made.

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CHAPTER I

INTRODUCTION

The federal government of Nigeria in 1977 issued a white paper on the New National Policy on Education. Section eight of the white paper specifically discusses special education. The purpose and objectives of special education as stated in the Nigerian National Policy on Education (Federal Ministry of Information, 1977) are:

> a) To give more meaning to the idea of equalizing educational opportunities for all children, their physical, mental, emotional disabilities not withstanding.
> b) To provide education for all handicapped children and their roles in the development of the nation.
> c) To provide opportunities for exceptionally gifted children to develop at their own pace in the interest of the nation's economy and technological development. (p. 23)

To implement its National Policy on Education, the federal government of Nigeria in 1978 established a National Education Policy implementation task force (Ministry of Information, 1978). The task force was given the Mandate to translate the National Policy on Education into a workable blueprint. In turn, the task force established as one of its committees the "Implementation Committee for the National Policy on Education."

In March 1979, the Implementation Committee submitted its final report with recommendations to the federal government (West Africa, 1979). Included in the recommendations of this report is a section on special education. The following recommendations on special education submitted by the Implementation Committee were accepted by the federal government (Federal Ministry of Information, 1979).

> 1) Special vocational institutions should be established in every state for the handicapped after primary education. This should be different from the junior secondary program.
> 2) Provision as regards appropriate staffing, materials and equipment should also be made for handicapped individuals who completed primary school education to enable them to benefit from regular secondary education programs.
> 3) A sub-committee of the National Committee for Special Education should be set up to handle job placement of the trained handicapped. (p. 51)

Special education in Nigeria at the time of this study was receiving the full support and encouragement from the federal government. Not only does the federal government give annual grants to state governments for education of the handicapped, but also for making education and medical care of handicapped children free at all levels of education, which include: pre-school, primary school, secondary education, tertiary and university education (Mba, 1978).

In Nigeria, special education is considered to be that form of education that is available to individuals of school age who are either physically or mentally handicapped. Included in the classification of physically handicapped students are those students who are visually handicapped.

In 1969, the estimated incidence of visually impaired children in Nigeria was 50,000; this amounts to 10 percent of the total student population enrolled in the primary schools, with higher incidence in the northern states (Commonwealth Secretariat, 1972, p. 6). Most of the incidences are preventable and are caused by tropical diseases such as river-blindness. Seven years later, a survey conducted in 1976 indicated that visually impaired individuals in Nigeria were given high priority in education by teachers of the handicapped when compared with emotionally disturbed children, children who were auditory handicapped and learners who could be placed in other categories of handicappness.

There are eight institutions in Nigeria in 1978 that offer the visually impaired individuals with a limited education. In fact, only two of these institutions provide a sort of vocational education training for the visually impaired (Federal Ministry of Information, 1978). The programs that exist in these eight institutions need to be expanded or new ones need to be put in place, if these individuals are to make a significant contribution to Nigerian society by becoming productive members of that society.

Statement of the Problem

The Federal and State Ministries of Education have funds for the implementation of appropriate programs for the physically handicapped, which is submitted to the state or Federal educational authorities. The purpose of this study is to develop a prevocational education program for the visually impaired, for implementation at the secondary school level, in Kano State, Nigeria. Such a program does not exist in Kano State.

Purpose of the Study

The major purpose of this study is to develop a pre-vocational education program for the secondary school students who are visually impaired and who wish to continue their education to the limit of their capabilities which will lead to valuable and profitable self-sufficiency. The program that is being developed is regional and specifically for Kano State, one of the nineteen states of the Federal Republic.

To achieve the major purpose of the study, specific objectives are advanced thus:

1. To describe federal government's National Policy toward education, its philosophy, aims and objectives and their relationship to the education of the visually impaired in Nigeria;
2. To describe and review technical/vocational education

programs that are offered in Kano State, at the secondary level, that are available to the visually impaired;

3. To secure, review, analyse and describe pre-vocational/vocational education curriculum materials received from educational officials in the United States of America of institutions that offer pre-vocational education programs to students who are visually impaired. From the curriculum materials that are received, an analysis to be made and determine which portions are appropriate for use in Kano State, Nigeria; and
4. To describe and review related literature pertaining to current concepts on education for the visually impaired.

The Significance of the Study

This study will have significance in the sense that it will make a contribution to the education of visually impaired learners in Kano State, because it will reflect the latest program offerings that are available in the United States and presents the latest research findings for this area of education.

Another significance is that this study, if implemented, will qualify the visually impaired to occupy the vacant job opportunities available to them which were reserved specifically for the handicapped by the federal government, as indicated in the literature.

Educational planners of states other than Kano, in Nigeria, might find the study useful in designing and implementing pre-vocational education programs for the visually impaired in their respective states. Although the results of this study are for one state in Nigeria, they may have implications for curriculum planners in developing countries who wish to implement a pre-vocational education program for the visually impaired. The study also might serve as a source of information to potential researchers who are interested in developing a similar program.

Limitation of the Study

This study is limited by the selection of institutions that were involved to participate in this study. The study is also limited by the kinds of information that are being furnished to the researcher by those institutions, such as programs of studies, program guides, courses of studies, course descriptions, for pre-vocational education for the visually impaired.

Another limitation of the study is the reliance on the available materials such as library research, newspaper articles, magazines, government publications, books and journal articles and also the kinds of information received from Nigeria that is being used for the study.

The study is limited to commercial and industrial occupational areas. The reasons for this limitation is discussed in the appropriate section in Chapter V.

Assumptions

This study makes the assumption that the instructional content identified in the curriculum guides, program guides, course of studies or syllabii that were sent by the participants of this study included basic concepts and principles which must be applied to visually impaired students in a pre-vocational education program.

Secondly, it is assumed that Kano State educational authorities will accept and implement the pre-vocational education program for the visually impaired, that was the result of this study.

It is assumed that the Federal Government of Nigeria would execute the steps specified in the National Policy on Education concerning training the teachers, who are to teach the visually impaired. These steps are discussed in the literature review (p. 68).

Definitions of Terms

The following terms are used throughout this study and need to be defined for the reader. Other terms are used in the content of this study and are defined where they are used.

Blind. The blind individual has been defined differently by many authors; for that reason the definition of blindness or blind individuals must be related to the purpose for which sight is needed. For this study, the definition developed by Hallahan and Kauffman (1978) is adapted.

The define the blind as:

> Those who are severely impaired, so that they must be taught by braille. The partially sighted can read print even though they need to use magnifying devices or books with large print. (p. 337)

Curriculum. The term "curriculum" has been defined in a multiplicity of ways. The definition by Derr (1977) will be used for this study. Derr states:

> Curriculum is used to refer to a set of things, which are taught, designated for learning, and given to pupils to be learned by them. (p. 152)

Pre-vocational Education. The accepted definition for the term "pre-vocational education" is the one developed by the Newfoundland Department of Education (1973) which describes pre-vocational education in its curriculum outline for its secondary schools as:

> Providing a more comprehensive curriculum and a continuing and broadening of the students' general education aimed at developing their full potential. It should prepare a student to continue his education at university, college, or vocational school, or pursue other educational goals. (p. 19)

Program. The term "program" was defined by Good (1973) in the third edition of Dictionary of Education as:

> All courses in one field of study, such as business education or industrial trades, organized to fulfill the same general objectives and conducted along similar lines. (p. 442)

Visually Handicapped/Impairment. In this study, the word "handicapped" is used synonymously with the word "impared." Kelly and Vergason (1978) defined visually handicapped/impaired as:

> Those individuals whose visual condition is such that special provisions are made necessary for their successful education. The term includes

both the blind and partially sighted. (p. 145)

Vocational Education. Broadly, vocational education was defined by Aguscobo (1973, p. 54) as that education which covers all formal instruction for both youth and adults at the secondary school, post secondary school, and out of school levels, which prepares individuals for initial entrance into occupations. There are a lot of vocational education definitions; the one that is adopted for this study is Evans (1978), who defines vocational education in this manner:

> That part of education which makes an individual more employable in one group of occupations than in another. (p. 1)

Data Sources

This study includes directors of agencies serving the visually impaired in selected state departments of education in the United States of America, as one source of information. The survey area includes those states that have a population equal to or more than that of Kano State, Nigeria (5,774,842 people).

The following states are identified as having equal to or more than 5,774,842 people: California, Florida, Illinois, Michigan, New Jersey, New York, Ohio, Pennsylvania and Texas. In addition, other states that have a population less than 5,774,842 people, but have outstanding pre-vocational/vocational programs for the visually impaired are included in this study. Such states are identified in the literature pertaining to educational programs for the visually impaired. The states involved are: Maryland Massachusetts, and New Mexico.

Another data source is administrators of those institutions that offer a pre-vocational/vocational education program at the secondary school level for the visually impaired in the states identified. How the administrators were identified is discussed in the appropriate section on methodology.

Methodology

The following methodology is used in conducting this research.

A search was made of the educational research information centre (ERIC) data base to identify reference sources that were concerned with the current concepts and practices in pre-vocational education for the visually impaired. The ERIC descriptors used include: blind, partially sighted, pre-vocational education, shop curriculum, visually handicapped.

To identify the institutions in the selected states of the United States of America that offer a pre-vocational/ vocational education program at the secondary school level, for the visually impaired, a manual library search was made of journals and periodicals that are concerned with pre-vocational education, the blind, and the visually impaired. The purpose of these searches was to identify the directors of agencies serving the visually impaired in the state departments of education that comprised the survey area for this study. Additionally, latest trends and practices in pre-vocational education for the visually impaired has been reviewed as well as educational indexes that report the findings of educational research.

The researcher prepared a letter that was sent to the selected state directors identified in the previous step, requesting them to co-operate in the study by supplying the researcher with a list of names and addresses of administrators of institutions in their respective states, where a pre-vocational/vocational education program for the visually impaired at the secondary school level is taught. A total of nine letters were mailed to the state directors. Appendix A, page 209 , includes a list of the names and addresses of the nine state directors involved, as well as a copy of the letter that was mailed. Of nine letters that were mailed, six replies were received, representing a 67 percent return.

The following states are those that replied to the initial letter: California, Illinois, Michigan, New Jersey, Ohio, and Pennsylvania. No response was received from Florida, New York or Texas. However, a list of names and addresses of administrators of institutions in those three states that did not respond and where pre-vocational/ vocational education programs for the visually impaired are offered were identified in the Directory of Agencies Serving the Visually Handicapped in U.S. (20th edition), 1978.

Other institutions were also identified from other states in the literature. A total of 30 administrators were identified.

The researcher prepared another letter that was mailed to those 30 school administrators asking them to cooperate in the research by providing to the researcher such curriculum materials, programs of studies, program guides, course outlines or course descriptions that are used with the visually impaired student. The content of this letter also explained the role of the participants in this study and provided them with a deadline date when the requested information should be supplied to the researcher. Appendix B, page 2I2, includes a copy of the letter and the names and addresses of the officials contacted. A total of 17 officials responded to the researcher's request.

The program guides and other research materials obtained from the participants of the study were reviewed and analyzed. From the materials received, an attempt was made by the researcher to identify the following:

1. Curriculum components: (a) philosophical statements, (b) aims, goals, and objectives, (c) instructional content, (d) learning experience, and (e) evaluation;
2. List of tools, equipment and facilities that are necessary for the training of the visually impaired in prevocational education programs;
3. That the programs received encompass the following occupational areas: wood technology, metal technology, electricity/electronics, ceramics, drafting (graphics),

home economics, and textiles; and

4. That special training and services such as survival skills, orientation and mobility are part of the school curriculum.

The program guides and other curriculum materials were further analyzed to determine that if there was articulation with other academic education disciplines such as mathematics, social studies and science. Also instructional/curriculum contents were identified that are adaptable to the program that is to be developed for use in Kano State secondary schools.

To identify instructional areas that are adaptable to the program that is to be developed, the Nigerian economic sector, Nigeria's manpower need and Kano State industrial growth were reviewed. Finally, the designed program was proposed to the educational authorities in Kano State, Nigeria.

Summary

This chapter presented an introduction to the study. Nigeria is just starting to implement its new National policies on education into practice. Large amounts of money have been allocated to various sections of education for implementation of innovative programs. Included among the sections is special education. Included in special education is education for the visually impaired.

The problem of implementing new educational policies in developing countries such as Nigeria is lack of materials, qualified personnel, workable programs and facilities. The purpose of this study is to develop a pre-vocational education program for Kano State visually impaired individuals. Included in the chapter are: the limitations of the research, assumptions, data sources, definitions of terms, and significance of the study. It also gave a brief overview of the methodology employed in the collection of data.

Organization of the Thesis

Chapter I presented an introduction to this study, stated the nature of the problem, and listed the objectives and limitations of the research. Also discussed were the data sources, definitions of terms, assumptions and the significance of the study. It also gave a brief overview of the methodology employed in the collection of data.

Chapter II deals with the review of the literature. The literature reviewed includes a discussion on the Nigerian educational system, Nigeria's philosophy of education, the present status of Nigerian economy and Nigerian manpower situation in general and Kano State in particular. Included in the content of Chapter II are: a brief discussion on curriculum design, education of the visually impaired in Nigeria, and a review of the writings of authorities who have written on topics of visual impairment and educational programs for the visually impaired.

Chapter III presents a deailed review and analysis of pre-vocational/vocational education research materials received from U.S. officials responsible for vocational education for the visually impaired at the secondary school level. Included in the content of Chapter III are: categories of responses, research findings, and detailed analysis of the content of the program guides, course offerings and other research materials.

Chapter IV deals with other considerations related to the development of a pre-vocational program for the visually impaired. Chapter IV describes the existing prevocational technical programs in Kano State, criteria for development of industrial education in general is presented, and a list of theoretical and practical considerations that should be taken into consideration in providing pre-vocational education for the visually impaired is also included.

Chapter V presents the proposed developed program. The structure, aims, goals and objectives are part of the content of Chapter V. Also included are the instructional content, a philosophical statement, and evaluation models that can be used in evaluating the program.

Lastly, Chapter VI deals with the summary of the whole study, conclusions, and recommendations to Kano State educational authorities are part of the content of Chapter VI.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

Chapter I presented an introduction to this study, stated the nature of the problem, and listed the objectives and limitations of the research. Also discussed were the data sources, definitions of terms, assumptions and the significance of the study. It also gave a brief overview of the methodology employed in the collection of data.

Chapter II is divided into three main sections, which are: the Nigerian educational system; education for exceptional children in Nigeria and a discussion on curriculum design; and review of literature on visual impairment. The first section is further divided into two parts. The first part of the first section discusses the Nigerian educational system. Content of this part includes some aspects of Nigerian educational policies and the Nigerian educational structure. The second part of this section deals with the status of Nigerian economy and Nigerian manpower situation in general and in Kano State in particular.

The second section of this chapter deals mainly with the education of exceptional children in Nigeria, with heavy emphasis on the visually impaired children, and a brief discussion on curriculum design.

The third and last section of this chapter is concerned with the review and analysis of the writings of authorities who have written on topics of visual impairment and educational programs for the visually impaired. A discussion of the visually impaired in the school workshop is part of the content of this section.

Nigeria - Its Geographical Location

The Federal Republic of Nigeria is located at the extreme inner area of the Gulf of Guinea on the West Coast of Africa. Nigeria occupies an area of 923,768 square kilometers and is divided into nineteen states, with a Federal capital territory located near the centre of the country. Nigeria is bordered by Chad on the northeast, by Cameroon on the east, by the Atlantic Ocean on the south, by Benin on the west, and by Niger on the northeast and north.

Nigeria is the most populous country of the African continent and the largest unit of people of African origin in the world (Lewis, 1965, p. 6). Nigeria is considered a heterogeneous state with an estimated population of 75 million people, which includes a large number of Hausas, Fulanis, Ibos, Yorubas, Edos, Kanuris, Tivs, Ijaws, Efiks, Igbirras, Ibibios and Oginis.

As a political entity, Nigeria came into existence in 1914, when it was colonized by England. In the early part of this century, England proclaimed as a protectorate

Northern and Southern Nigeria. Later in its history, Nigeria was divided into three provinces (changed in 1946 to regions). In 1957, Eastern and Western regions of Nigeria were granted internal self-government. Two years later, in 1959, the Northern region was granted the same status of self-government as the other two regions.

On October 1, 1960, Nigeria was granted independence from England and three years later, on October 1, 1963, a Republican Constitution was adapted. In 1964, a new region, called Midwest region, was added to the three existing regions (Northern, Western and Eastern regions) (Commonwealth Institute, 1976). Figure 1 shows a map of Nigeria, presenting the 19 states and the federal capital territory.

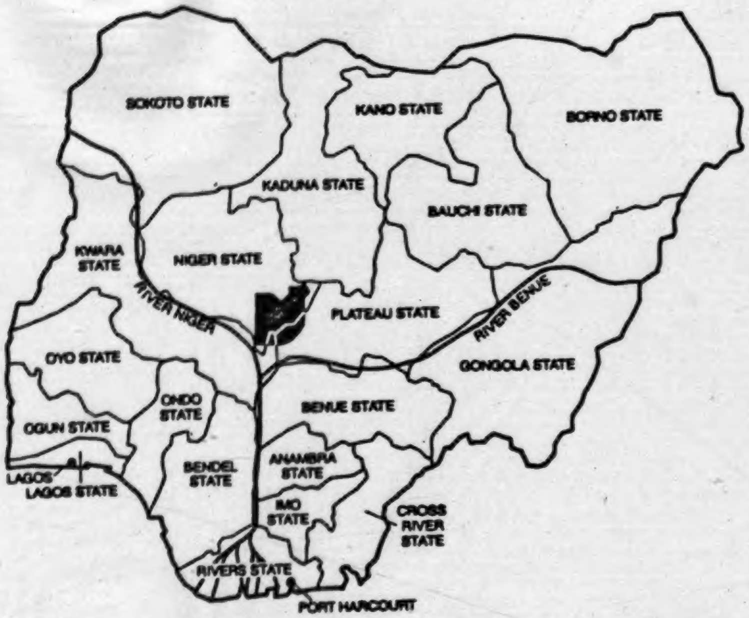
Government

Since independence on October 1, 1960 and until the Armed Forces took over in 1966, Nigeria was governed under a parliamentary system modelled after the British system, with a Federal House of Representatives, a Senate and State House of Assembly in the then three and later four states of the the Federation. In the aftermath of a constitutional crisis, the Armed Forces took over the government of the country in 1966, and maintained that role through several administrations.

The first military administration tried to change the federal structure of the country by abolishing the regions and instituting a unitary structure in the form of a

Figure 1

Map of Nigeria Showing the 19 States Structure and the New Federal Capital Structure


SOKOTO STATE
KANO STATE
BORNO STATE
KADUNA STATE
BAUCHI STATE
KWARA STATE
NIGER STATE
RIVER NIGER
PLATEAU STATE
RIVER BENUE
OYO STATE
GONGOLA STATE
ONDO STATE
BENUE STATE
OGUN STATE
BENDEL STATE
ANAMBRA STATE
LAGOS
LAGOS STATE
IMO STATE
CROSS RIVER STATE
RIVERS STATE
PORT HARCOURT

■ Federal Capital Territory

Source: Federal Nigeria, Volume IV, No. I, July-September, 1977, p. 16.

national government. This attempt failed, and by August of 1966, when General Gowon (then a Lieutenant Colonel) assumed the leadership of the country, the federal structure of the country was restored (New African Yearbook, 1978).

Plagued with civil disturbances in many parts of the country, and a threat of succession from the eastern region, the military administration of General Gowon proclaimed in a decree No. 14 of the 27th of May, 1967, a twelve state structure for the Republic of Nigeria.

The third military administration came into power as a result of bloodless coup d'etat on July 29th, 1975, under the leadership of the late General Murtala Muhammed, and later of General Ohisegun Obasanjo. This regime initiated far-reaching economic, political and social policies. Seven new states were created. A constitution drafting committee was established and given the mandate to draft a new constitution for returning Nigeria to civilian rule on October 1, 1979. On that day, General Obasanjo handed over the power of the government to a newly elected civilian government under the leadership of Alhaji Shehu Shagari, an executive President (Africa Guide, 1979).

Kano State

As previously stated, Nigeria is composed of nineteen states with a ministerial system of government for each of these states.

Kano State is one of the nineteen states of the

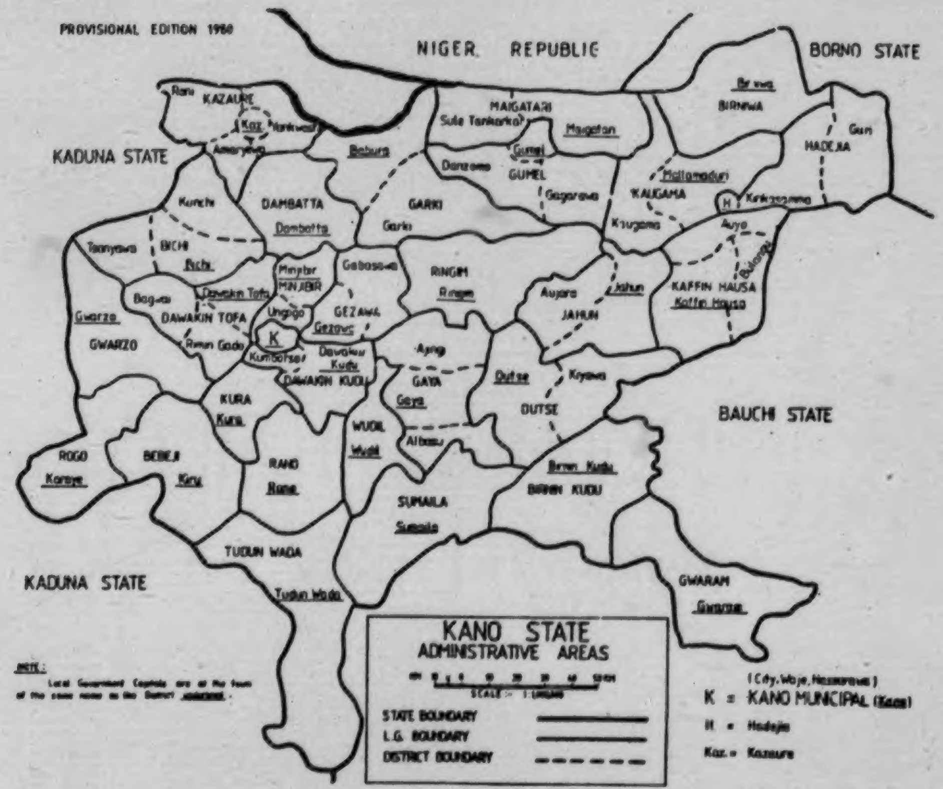
Federation and came into existence on April 1, 1968. Kano State has an area of 42,592.8 square kilometers and a population of 5,774,842, according to the 1963 census. The 1976 census was rejected by the federal government of Nigeria; the 1976 census puts the population of Kano State to 10 million. Kano State is the most densely populated in the Federation (Kano State Diary, 1981), and is comprised of the following four emivates: Kano, Gumel, Hadejia and Kazaure.

On January 1, 1969, a major local government reform was introduced and Kano State was divided into eight administrative areas. The aims of the reforms are: bringing the government closer to the people and giving them opportunity to participate in decision-making and other matters affecting their lives (Kano State Handbook, 1977).

Under the 1976 local government reforms, Kano State was divided into one municipal council and 19 local government councils making a total of 20 authorities. With the advent of the present civilian administration, a panel was set up to examine the local government system and recommend the creation of new local governments out of the existing 20. Nine more local governments were subsequently created, thus bringing their number to 29 (Kano State Diary, 1981). Figure 2 shows the location of Kano State in relation to its other neighbouring states.

Figure 2

Map of Kano State in Relation to Its Other Neighbouring States


PROVISIONAL EDITION 1980
NIGER REPUBLIC
BORNO STATE
KADUNA STATE
BAUCHI STATE
KADUNA STATE
KAZAURE
Koz
Roni
Amaryawa
Babura
MAIGATARI
Sule Tankarkar
Maigatari
Gumel
GUMEL
Danzomo
Gagarawa
Birniwa
BIRNIWA
HADEJIA
Guri
Mallamaduri
KAUGAMA
Kaugama
H
Kirikasamma
Auyo
KAFFIN HAUSA
Kaffin Hausa
Kunchi
DAMBATTA
Dambatta
GARKI
Garki
Tsanyawa
BICHI
Bichi
Minjibir
MINJIBIR
Gabasawa
RINGIM
Ringim
Aujara
Jahun
JAHUN
Bagwai
Dawakin Tofa
DAWAKIN TOFA
Ungogo
GEZAWA
Gezawa
Gwarzo
GWARZO
Rimin Gado
K
Kumbotso
Dawakin Kudu
DAWAKIN KUDU
Ajingi
GAYA
Gaya
Dutse
DUTSE
Kiyawa
KURA
Kura
WUDIL
Wudil
Albasu
ROGO
Karaye
BEBEJI
Kiru
RANO
Rano
SUMAILA
Sumaila
Birnin Kudu
BIRNIN KUDU
TUDUN WADA
Tudun Wada
GWARAM
Gwaram
KANO STATE
ADMINISTRATIVE AREAS
STATE BOUNDARY
L.G. BOUNDARY
DISTRICT BOUNDARY
(City, Waje, Nassarawa)
K = KANO MUNCIPAL (Kano)
H = Hadejia
Kaz. = Kazaure

Source: Kano State Diary, 1981.

Some Aspects of Nigeria's Education Policy

As outlined in the third National Development Plan, 1975-80, Nigeria continues to recognize education as a very powerful instrument for social change in the process of dynamic nation-building. Government commitment is the creation in the country of an educational system capable of ensuring that every citizen is given full opportunity to develop his intellectual and working capacities for his own benefit and that of his community. Government identifies six national objectives as follows:

> 1. To expand facilities for education aimed at equalizing individual access to education throughout the country;
> 2. To reform the content of general education to make it more responsive to the socio-economic needs of the country;
> 3. To consolidate and develop the nation's system of higher education in response to the economy's man-power needs;
> 4. To streamline and strengthen the machinery for educational development in the country;
> 5. To rationalize the financing of education with a view to making the educational system more adequate and efficient; and
> 6. To make an impact in the area of technological education so as to meet the growing needs of the economy. (Nigerian Handbook, 1977, p. 187)

Highlights of the 1975-80 Development Plan arising from the six national objectives include the following:

a) Free universal and compulsory primary education throughout the country;
b) Free education for handicapped and gifted children at all levels;
c) The introduction of a parallel system of secondary technical schools to supplement the present system of secondary education;
d) The production of trained teachers for schools at all levels and the up-grading of teachers in-service; and

e) The expansion and consolidation of the existing universities. (Nigeria Handbook, 1977, p. 185)

The six National Educational Objectives were incorporated unchanged in the fourth National Development Plan, 1981-85.

To discuss the aspects of Nigeria's educational policy that bear on the philosophy, technical, secondary and higher education, a brief history of Nigerian education will be given.

The introduction of Islam to Borno in the 11th century A.D. marked the beginning of Islamic education and the establishment of Islamiyya schools, first in the northern part of the country and later in the southern areas. Records indicate that by 1914 there were as many as 24,757 Islamiyya schools in Nigeria, enrolling 218,615 pupils under the supervision of 15,000 Muallims or Mallams-local religious teachers-(Federal Nigeria, 1977, p. 10).

The arrival of the Christian missions marked the introduction of western education in the southern part of Nigeria in 1842, and later in the whole country. Government intervention started by the promulgation of the educational ordinance of 1882.

A combination of factors including the Universal Negro Improvement Association in New York, National Congress of West Africa, and the Phelp-Stokes Fund of New York compelled Britain to set up Advisory Committee on Native education in British Tropical Dependencies which led to greater governmental involvement in Nigeria's education planning (Federal Nigeria, 1977).

The Government involvement resulted in building 53 government schools and 82 grant-aided schools in 1915. By 1921 there were some 2,000 government schools in the country, which enrolled 150,000 pupils. Between 1937 and 1914, primary schools enrolment in the colony and southern provinces rose by 50 percent and in the northern provinces, enrolment rose by more than 60 percent (Federal Nigeria, 1977).

The Richard and Macpherson Constitutions (1946 and 1951) which brought significant political development also positively affected educational advancement in the country.

The foot Commission of 1948 called for the training of administrative and technical staff through scholarship awards in order to prepare Nigerians for responsible governmental positions. This view was again emphasized and elaborated upon by the Solaru Commission of 1958 and the famous Ashby Commission of 1959 (Federal Nigeria, 1977, p. 11).

All these resulted in the expansion of primary, secondary, technical and higher education throughout the Federation. Government expenditure on education rose sharply in direct proportion to the sharp increase in student population.

Nigeria's post-independence educational needs have called for more purposeful governmental intervention in our educational planning. In 1970, the Second National Development Plan (1970-74) was launched. The objectives of the plan include the following:

> a) A united, strong and self-reliant nation;
> b) A great and dynamic economy;
> c) A just and egalitarian society;
> d) A land of bright and full opportunities for all citizens; and
> e) A free and democratic society. (National Policy on Education, 1977, p. 2)

To achieve these five national objectives, the government needed the following:

> a) A re-definition of the goal of Nigerian education;
> b) A departure from existing practice regarding the ownership, control and administration of our educational institutions, if our national interest is to be well served;
> c) A democratization of education at all levels and for all Nigerians irrespective of their geographical locations, religious, persuasion and age;
> d) A re-evaluation of the contents of our curriculum so as to make it relevant to a country poised to modernize her economy and sensitive to a preservation of her moral and cultural values;
> e) A revision of the division of responsibilities between the Federal, State and Local Governments, and a re-adjustment of financial obligations on education among these layers of government;
> f) A review of the proper roles to be played in our educational process by teachers, parents and the community;
> g) A re-examination of the role, status and remuneration of our educational personnel; and
> h) A review of adult educational programs with a view to producing functionally literate Nigerian adults. (Federal Nigeria, 1977, p. 11)

A new Nigerian policy on education, devoid of colonial vestiges and an education that will meet her national aspiration, was needed.

On September, 1969, a National Curriculum Reform Conference was held in Lagos. Participants came from all walks of life to deliberate on the aims and goals of education suited for the country. At the end of the conference, recommendations were made to the government on primary education, secondary education, higher education, technical education, teachers education, women's education, education for living and the role of science and technology in National development.

The Federal Ministry of Education did set up a seminar of distinguished educational experts in 1973 under the chairmanship of Chief S.O. Adebo to examine all aspects of Nigerian Policy on Education and make recommendations. This was followed by the setting of nine panels of experts to study and review the recommendations of the 1973 seminar. These panels as well as others who were not involved in the original assignment continued to meet until January of 1976. The Federal government accepted the final draft on the 28th of September, 1976 (Federal Nigeria, 1977).

Philosophy of Nigerian Education

Directed towards a rapid attainment of Nigerian National objectives, the new philosophy of education seeks to integrate the individual to a sound and effective citizen and aims at democratization of education at the primary, secondary and tertiary levels both inside and outside the formal school system. The government's white paper on National Policy on Education stated that:

> Nigeria's philosophy of education is based on self-realization and self-actualization, better human relationship, individual and national efficiency, effective citizenship, national consciousness and national unity, economic, political, scientific and technological progress. (Federal Nigeria, 1977, p. 11)

The national aims of education give support to the philosophy for education in this manner:

> 1) The inculcation of national consciousness and national unity;
> 2) The inculcation of the right type of values and attitudes for the survival of the individual and the Nigerian society;
> 3) The training of the mind in the understanding of the world around; and
> 4) The acquisition of appropriate skills, abilities and competencies both mental and physical as equipment for the individual to live in and contribute to the development of his society. (National Policy on Education, 1977, p. 4)

In Nigeria, the philosophy, and aims and objectives for the various levels of education are established by the Federal government. The interpretation and implementation of both these facets of education are left to the state governments. The state governments have control over primary and secondary education (National Policy on Education, 1977).

Education Structure

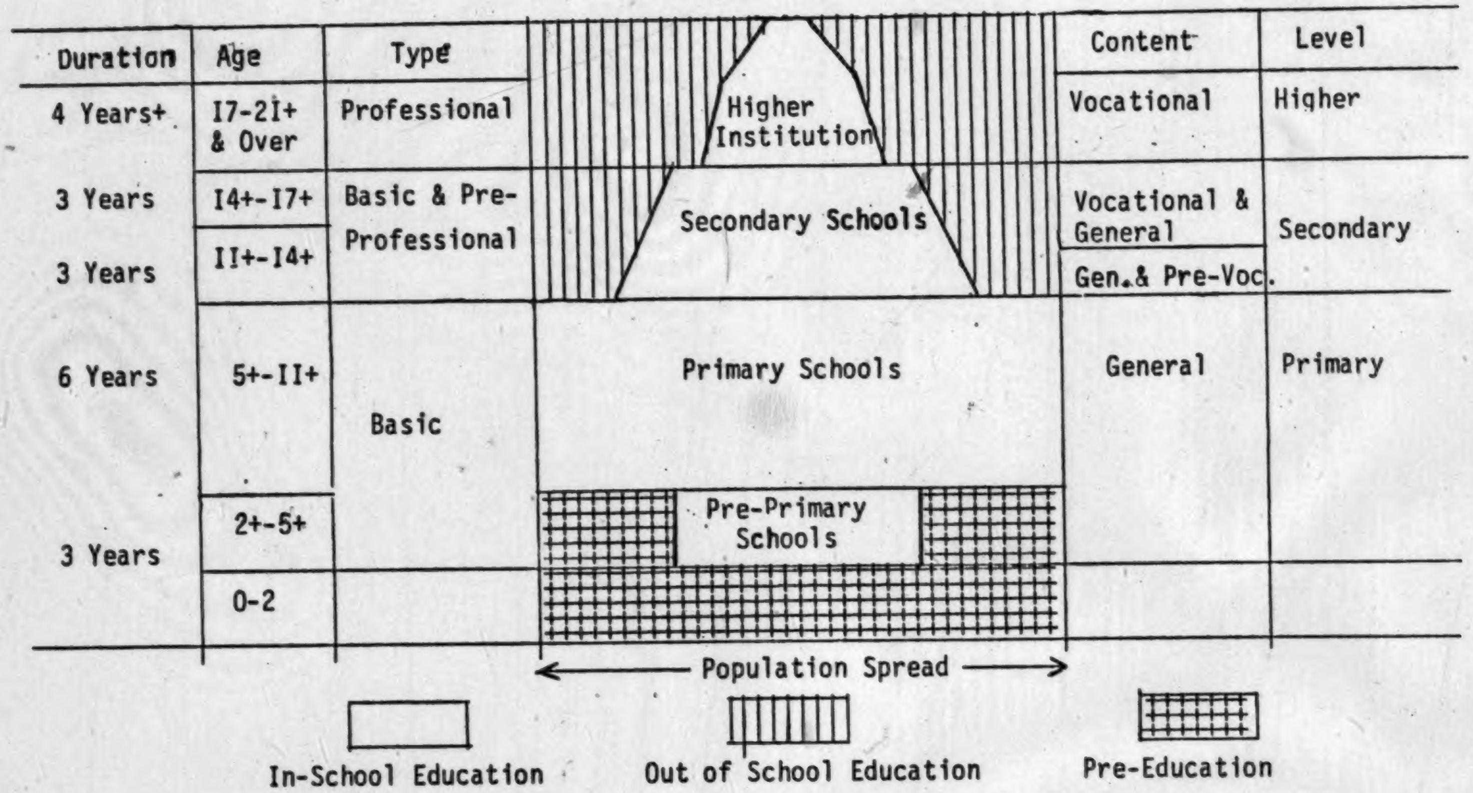
At the time of this study, the educational structure for Nigeria is divided into four district levels which include pre-primary education, primary, secondary education, and higher education. Figure 3 shows the current Nigerian education structure.

The first level of education is pre-primary education, which is education provided to children who are from three to five years of age, and is offered prior to their entering primary school.

The basic purpose of pre-primary education is to

Figure 3

Life Long Education


Duration
Age
Type
Content
Level
4 Years+
I7-2I+ & Over
Professional
Higher Institution
Vocational
Higher
3 Years
I4+-I7+
Basic & Pre-Professional
Secondary Schools
Vocational & General
Secondary
3 Years
II+-I4+
Gen.& Pre-Voc.
6 Years
5+-II+
Basic
Primary Schools
General
Primary
3 Years
2+-5+
Pre-Primary Schools
0-2
Population Spread
In-School Education
Out of School Education
Pre-Education

Source: Federal Republic of Nigeria: National Policy on Education, 1977, p. 1.

make the transition from home to school less painful to the children and cultivate in them an awareness of the society around them (National Policy on Education, 1977, p. 6).

The second level in the education structure is primary education, which is given to children who are between five years, six months and six years, six months of age. The aims of primary education are basically concerned with literacy and numeracy as well as the awareness of the environment that surrounds the learner.

The launching of the Universal Free Primary Education Scheme (U.P.E.) in 1976 made primary education available to every Nigerian child. Hancock (1979) summed up the purpose of the scheme in this manner:

> No social experiment in the modern world has been more ambitious than the introduction of Universal primary education in Nigeria. Each year since 1976 all six year old children have been admitted to school, so that, by 1982, all children of primary school age--6 to 11--should be at school. (Africa Guide, p. 243)

It has been stated (West Africa, 19 November 1979) that 2.1 million primary school leavers would graduate as products of the Universal primary education (U.P.E.) programs throughout the country by June 1982. About 40 percent of those pupils are expected to proceed to junior secondary schools, about 1.3 million students will have to be absorbed in programs deviced by various states governments in the country.

The third level of education in the educational structure of Nigeria in general and Kano State in particular is secondary education. Since this study is concerned mainly with secondary school education, this section on structure will be discussed in detail.

Secondary education is a form of education that children receive after primary education and before tertiary education. Secondary education has two broad goals: preparation for useful living within the Nigerian society; and preparation for higher or tertiary education.

The National Policy on Education (1977) provides the following aims for secondary education:

> 1. Provide an increasing number of primary school pupils with the opportunity for education of a higher quality. . .;
> 2. Diversify its curriculum to cater to the differences in talents, opportunities and roles possessed by or open to students after their secondary school course;
> 3. Equip students to live effectively in our modern age of science and technology;
> 4. Develop and project Nigerian culture, art, and languages as well as the world's cultural heritage;
> 5. Raise a generation of people who can think for themselves, respect the views and feelings of others, respect the dignity of labour, and appreciate those values specified under our broad national aims and lives as good citizens;
> 6. Foster Nigerian unity with an emphasis on common ties that unite us in our diversity;
> 7. Improve its students with a desire for achievement and self-improvement both at school and in later life. (p. 10)

Secondary education is divided into two stages, with junior secondary school constituting the first stage. Senior secondary school forms the second stage. Each stage is of three year duration. The first stage is a school which is for students between the ages of 11 years, seven months and 14 years, six months, while the second stage is a school for students whose age range is 14 years, seven months to 17 years, six months.

The junior secondary school is both pre-vocational and academic courses offered at junior secondary schools in Kano State and includes the following subjects: Hausa (language), English, Religious knowledge, mathematics, arts and crafts, needlework and dressmaking, integrated science, social cultural studies, human economics, agricultural science, health science and vocational courses (such as machine shop, carpentry, electronics, masonry, etc.). Students who leave school at junior high school may then go to an apprenticeship system or other scheme for out of school vocational training.

The senior secondary school is for students who are able and willing to complete a six-year program of secondary education. Senior secondary schools are classified as follows: grammar, technical, commercial, agricultural or teacher training. Each one of these secondary schools is described below. The grammar senior secondary school provides the students with the background education to successfully pass the school leaving examinations that will permit the graduate to receive either the West African School Certificate (W.A.S.C.) or the General Certificate of Education "ordinary" level (G.C.E. "O" level). Courses offered in this school include science and liberal arts subjects.

Another type of secondary school in Nigeria is the technical secondary school which has these three discrete types of programs: secondary, craftmanship and vocational.

Students enrolled in a secondary technical school in addition to taking courses in the hard sciences of physics and chemistry must also take courses in woodworking, metal work and technical drawing. Students who successfully complete this program receive either a W.A.S.C. or a G.C.E."O" level.

Those students who enroll in a technical craftsmanship school in addition to taking liberal arts courses, English, Social Sciences, Mathematics, and language must also take courses associated with the applied sciences. Students who graduate from these schools are granted a City and Guilds Certificate in Civil, Mechanical or Electrical Engineering.

Technical and vocational training schools are schools that offer programs in the following occupational areas: motor mechanics, carpentry, electronics and building construction. Successful candidates will qualify for the Federal Trade Certificate issued by the Federal Government of Nigeria.

The third type of secondary schools are those that are classified as technical/commercial schools. In these schools, students study typing, shorthand, bookkeeping, accounting, in addition to taking courses in English, mathematics, social studies and office routine. Students who successfully complete the program of the school receive either a W.A.S.C. or G.C.E. "O" level Certificate (Burns, 1965).

Students who are interested in agriculture may attend a technical/agricultural school where they study mainly theory subjects that will prepare them to enter an agricultural college.

The fourth type of school is the teacher training colleges, which normally offer courses for the preparation of teachers. Courses in these colleges are categorized into four groups and can be distinguished as either compulsory or elective courses.

The next level of education in the educational structure of Nigeria is higher education. Higher education, which includes professional education, is classified as tertiary education and is given at universities, Polytechnics and colleges of technology. It also includes those courses that are given by the colleges of education, the advanced teachers' training colleges, as well as the correspondence colleges.

At the time of this study, Nigeria had fourteen universities and seven new universities of technology are to be built during the current (1981-85) Development Plan. These universities offer full range of programs at the baccalaureate, professional, masters and doctoral levels. Students are admitted to university by one of two routes. The first of these routes is for students who have successfully completed their education at a post-secondary institution. The second route is for students who are admitted to university on a concessional basis. These students must possess a certificate from a secondary school and in addition they must pass the university entrance certificate.

Technical education in Nigeria is defined in the National Policy on Education (1977) as "that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge. There are five types of technical education institutions outside the universities--the pre-vocational and vocational schools at post-primary level, the technical colleges, the polytechnics, and colleges of technical teacher education at post-secondary level (National Policy on Education, 1977).

The following are the aims of technical education in Nigeria:

> a) To provide trained manpower in applied science, technology and commerce particularly at sub-professional grades;
> b) To provide the technical knowledge and vocaitonal skills necessary for agricultural, industrial, commercial, and economic development;
> c) To provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man;
> d) To give an introduction to professional studies in engineering and other technologies;
> e) To give training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant; and
> f) To enable our young men and women to have an intelligent understanding of the increasing complexity of technology. (p. 19)

Students who successfully complete a program at a polytechnic or a college of science and technology receive either an Ordinary National Diploma (O.N.D.) or a Higher National Diploma (H.N.D.). The programs offered at these non-university institutions are normally two years in duration. Students gain admission to a Polytechnic by possessing either the West African School Certificate (W.A.S.C.) or the "ordinary level" General Certificate of Education (G.C.E.).

Teacher education is offered both at the post-primary and post-secondary levels. At the post-primary level, the institutions are called Teacher Training Colleges, while at the post-secondary level, they are either Advanced Teachers' Colleges, Institute of Education Colleges, National Teachers' Institute or Teachers' Centres.

The objectives of teacher education are: to provide highly motivated, conscientious and efficient classroom teachers; encourage the spirit of inquiry and creativity in teachers; identify themselves with the community's aspirations; and to make them adaptable to changing situations (National Policy on Education, 1977, p. 25).

The implication of this section to the development of the proposed program will be to assist the researcher in developing the aims, goals, and objectives of the proposed program as well as its philosophy. The section on educational structure will be the basis for developing the structure of the program to be developed

Having considered the educational structure, which described primary, secondary, and post levels of education in accordance with National Policy on Education, it might be helpful to briefly discuss the Nigerian economy from 1960 to the present time and Nigeria's manpower situation.

The Nigerian Economy

Agriculture was, until recently, the basic of Nigeria's economy and it still provides a livelihood for nearly 70 percent of the working population, as well as raw materials for the processing industries and food for the country's fast growing population. However, in terms of export earnings, agricultural commodities have been rapidly overtaken by crude petroleum, which is now the main engine of growth. This new source of revenue enabled the Nigerian economy to make a remarkable recovery after the civil war (1970) and provide finance for future development (Commonwealth Institute, 1976).

The Nigerian economy is now growing at an encouraging growth rate. The Gross Domestic Product (GNP) at constant 1974-75 prices rose from a level of ₦9.442 billion (C$18.884 billion) in 1970-71 to ₦15.510 billion (C$31.022 billion) in 1975-76, indicating an annual growth rate of 10.6 percent during the period (Nigeria Handbook, 1977, pp. 82-84).

Apart from oil, Nigeria is among the world's top three cocao producers. Other main cash crops include groundnuts, cotton, rubber, palm produce, timber, benniseed (sesame), soya beans and cashew nuts. The main food crops are rice, maize, guinea corn, taro (coco yams), millet, cassava, wheat and yams. Others include suger cane, tea beans and cow peas, plantains and bananas, oranges and other citrus fruits. Nigeria is largely self-sufficient in meat products and it exports hides and skin.

Nigeria has a variety of mining resources that include oil, natural gas, coal, tin, columbite, iron ore, limestone, lead, zinc, gold, wolfram, marble, and lignite (Commonwealth Institute, 1976).

The manufacturing sector has maintained a consistently high growth rate at about 10 percent per annum. In 1971, the record showed 35 percent growth rate. There are Peugeot and Volkswagon car assembly plants now in production. British Leyland is to build a commercial vehicle factory at Ibadan in conjunction with the Federal Government. Fiat and Diamler Benz are also to set up assembly plants in Nigeria. Tables 2.1 to 2.19 give statistical data on the economic activities in Nigeria. The data have been extracted from New African Yearbook, 1979, published by I.C. Magazines Limited, London, England.

Highlights of the Fourth National Development Plan, 1981-85

Nigerian Fourth Development Plan was launched on January 12, 1981. The plan envisaged on effective investment of ₦82 billion (C$175 billion) as against ₦30 billion in the 1975-80 plan. The 1981-85 plan is expected to generate an overall growth of about seven percent per annum for the economy in the real terms. This is in keeping with the target being proposed for developing countries under the Third United

Table 2·I

GDP by Source
(million naira; 1974 factor cost)

	1973	1974	1975	1976	1977*
Agriculture	3,246.5	3,636.2	3,661.7	3,758.2	3,930
Mining	5,927.6	5,859.7	5,066.9	5,350.2	5,730
Manufacturing	626.5	681.2	952.3	1,150.2	1,320
Electricity and Water	52.0	56.6	65.0	81.4	87
Construction	710.8	837.8	1,299.9	1,429.9	1,560
Wholesale and retail trade	910.6	1,191.1	1,259.5	1,385.9	1,500
Transport, etc.	278.2	366.8	411.0	541.9	580
Other services	1,383.3	1,624.9	1,931.5	2,453.5	2,750
GDP at Constant Factor Cost	13,125.5	14,254.3	14,647.8	16,151.2	17,460
GDP at Current Factor Cost	8,452.7	14,254.3	15,718.3	18,911.5	**
Indirect Taxes	458.9	521.6	833.7	875.4	**
Less Subsidies	11.1	12.5	20.1	32.3	**
GDP at Current Market Prices	8,900.5	14,763.4	16,531.9	19,754.6	**

* Estimates
** Not Available

Source: Economic Commission for Africa (ECA)

GDP - Gross Domestic Product

Table 2.2

Expenditure and GDP
(million naira: current market prices)

	1973	1974	1975	1976
Private consumption	5,551.1	7,474.9	7,685.8	8,613.6
Public consumption	932.0	1,618.4	3,775.2	3,675.1
Gross capital formation	1,745.9	2,725.5	4,780.2	6,700.0
Exports less imports of goods and services	671.5	2,944.6	290.7	765.9
Total GDP at Current Market Prices	8,900.5	14,763.4	16,531.9	19,754.6
Gross domestic savings	1,811.1	5,614.3	5,018.8	6,256.9

Source: Economic Commission for Africa (ECA)

GDP - Gross Domestic Product

Table 2.3

Balance of Payments
(million naira)

	1975	1976	1977 *	1st quarter 1977	1st quarter* 1978
Current Account	+42.6	-259.3	-656.5	-80.1	-783.9
Merchandise	+1,487.1	+1,293.5	+639.6	+352.5	-365.4
Services	-1,367.7	-1,455.0	-1,177.4	-387.2	-373.3
Unrequited transfers	-76.8	-97.8	-118.7	-43.4	-45.2
Capital Account	+141.1	-50.6	+234.4	+29.3	+449.2
Direct Investment and private capital	+261.1	+215.8	+297.0	+59.9	+152.6
Official long-term	-135.7	-234.2	-20.2	-30.6	+296.6
Overall balance	+157.5	-339.9	-447.0	-58.7	-342.7
Monetary Movement**	-157.5	+339.9	+447.0	+58.7	+342.7

* Provisional.

** Minus sign indicates increase in assets; plus sign indicates decrease.

Source: Central Bank of Nigeria

Table 2.4

Oil Companies' Contribution to Balance of Payments

(million naira)

	1976	1977*
Payments to government authorities	4,758.0	5,802.6
Other local payments	+170.8	+166.0
Variation in cash holdings	+25.0	-95.2
Local receipts	-45.7	-58.9
Total Contribution	4,190.1	5,814.5

* Provisional.

Source: Central Bank of Nigeria

Table 2.5

Exports

(million naira)

	1976	1977*
Major agricultural (including forest) products	274.1	393.7
Cocoa	218.9	321.7
Cotton (raw)	-	10.2
Groundnuts	0.2	0.1
Hides and skins	6.8	5.0
Palm Oil	0.5	-
Palm kernels	27.0	35.8
Rubber (natural)	14.4	16.1
Timber (logs and sawn)	0.9	0.5
Coffee	5.4	4.7
Mineral Products	6,324.7	7,975.2
Columbite	2.5	5.5
Petroleum (crude)	6,321.7	7,969.2
Manufactures and semi-manufactures	58.9	96.4
Agriculture	22.8	53.8
Tin metal	15.5	10.5
Other Exports	86.0	197.5
Total Domestic Exports	6,743.7	8,662.8
Re-exports	7.4	10.7
TOTAL EXPORTS	6,751.1	8,673.5

* Provisional.

Source: Central Bank of Nigeria

Table 2.6

Trade Balance

(million naira)

	1975	1976	1977*	1st quarter* 1977	1st quarter** 1978
Exports	4,925.5	6,751.1	8,673.5	1,915.9	1,381.7
Oil Exports	4,563.1	6,321.7	7,969.2	1,781.1	1,194.2
Imports	3,721.5	5,148.8	7,296.8	1,571.9	1,807.7
Balance	+1,204.0	+1,602.6	+1,376.7	+344.0	-426.0

* Provisional.
** Estimates.

Source: Central Bank of Nigeria

Table 2.7

Direction of Exports

(million naira)

	Oil Exports		Non-Oil Exports	
	1976	1977*	1976	1977
Africa	123.4	159.4	10.9	21.8
West Africa	114.9	159.4	6.9	21.8
Asia	25.5	-	7.9	17.6
Japan	25.5	-	6.7	14.8
Americas	3,826.5	5,482.8	80.7	98.6
United States	2,278.5	3,578.2	76.2	98.6
Eastern Europe	-	-	31.5	35.9
Western Europe	2,346.3	2,327.0	290.5	527.6
Netherlands	617.3	581.8	78.7	130.3
West Germany	399.1	430.3	46.3	116.9
France	573.6	549.9	8.7	21.8
United Kingdom	576.3	518.0	128.1	204.4
Total Exports	6,321.7	7,969.2	429.5	704.3

* Provisional.

Source: Central Bank of Nigeria

Table 2.8

Consumer Price Index
(1960 = 100)

	1970	1975	1976	1977
General Index	150.6	285.1	348.1	422.3
Food Index	164.4	367.7	464.7	591.5
Inflation Rate (%)	13.8	33.5	22.1	21.4

Source: Central Bank of Nigeria

Table 2.9

Oil Production and Exports, 1978
(million barrels)

1978	Production	% Change	Exports	% Change
January	50.8	-11.5	49.5	-10.3
February	43.9	-13.6	43.3	-12.5
March	47.5	8.2	46.8	8.1
1st Quarter	142.2		139.6	
April	50.8	6.9	51.9	10.9
May	53.3	4.9	49.5	-4.6
2nd Quarter	159.4		152.7	

Source: Standard Chartered Bank

Table 2.10

Imports by Sections

(million Naira)

	1976	1977*
Food and Live Animals	440.9	790.3
Beverages and Tobacco	64.0	146.8
Crude Materials	78.9	70.7
Mineral Fuels	175.0	136.8
Animal and Vegetable Oils and Fats	24.7	46.9
Chemicals	397.0	464.9
Manufactured Goods	1,136.2	1,581.9
Machinery and Transport Equipment	2,444.7	3,528.8
Miscellaneous Manufactured Articles	371.8	516.8
Miscellaneous Transactions	15.3	13.0
Total	5,148.5	7,296.8

* Provisional.

Source: Federal Office of Statistics

Table 2.II

Sources of Imports (Non-Oil)
(million naira)

	1976	1977*
Africa	45.8	87.7
West Africa	23.8	57.7
Asia	742.7	1,062.4
Japan	468.1	672.2
Americas	676.3	990.1
United States	542.4	823.9
East Europe	90.0	180.7
West Europe	3,481.3	4,900.2
West Germany	817.7	1,156.4
France	364.9	549.3
United Kingdom	1,181.0	1,561.0
Total Non-Oil Imports	5,049.7	7,227.3

* Provisional.

Source: Central Bank of Nigeria

Table 2.12

Oil Output

	1973	1974	1975	1976	1977
Million Barrels	750.7	822.7	651.9	758.1	765.5

Source: Petroleum Economist.

Table 2.13

Mineral Output
(thousand tonnes)

	1972	1973	1974	1975	1976
Tin Ore	9.1	7.9	7.4	6.3	5.0
Coal	341.2	327.1	304.0	273.7	220.1
Limestone	1,406.0	1,801.2	1,810.9	1,650.3	1,553.5

Source: Economic Commission for Africa (ECA).

Table 2.14

Industrial Production Index

(1972 = 100)

	1975	1976	1977
Vegetable Oil	35.7	24.4	12.4
Soft Drinks	224.9	322.1	200.7
Beer	178.5	191.0	191.4
Cotton Textiles	144.9	161.0	163.8
Other Textiles	611.0	1,051.8	1,143.0
Refined Petroleum Products	105.4	128.0	123.6
Pharmeceuticals	148.3	239.8	216.2
Cement	115.6	115.4	118.4
Roofing Sheets	137.9	161.2	200.5
Vehicle Assembly	302.2	698.6	1,041.9
Total	147.7	182.2	194.5

Source: Central Bank of Nigeria

Table 2.15

Cement Production and Imports
(thousand tonnes)

	1972	1973	1974	1975
Production	1,112	1,222	1,226	1,388
Imports	721	855	1,063	1,738
Total Supply	1,833	2,077	2,289	3,126

Source: Federal Office of Statistics, Lagos

Table 2.16

Cash Crop Production

	Commodity Board Purchases (thousand tonnes)		Producer Income (million naira)	
	1976	1977	1976	1977
Benniseed	2.0	2.0	0.5	0.6
Cocoa	200.2	165.0	132.2	170.0
Seed Cotton	149.2	181.1	46.0	59.8
Groundnuts	148.2	140.0	37.0	38.5
Palm Kernels	295.1	301.9	44.3	45.3
Palm Oil	55.2	47.0	14.6	13.9
Soya-beans	1.6	1.4	1.6	0.2

Source: Standard Chartered Bank

Table 2.17

Food Crop Production

(thousand tonnes)

	1976	1977
Cereals	8,489	8,426
Rice	534	600
Maize	1,295	1,395
Sorghum	3,680	3,750
Millet	2,900	2,600
Roots and Tubers	28,230	27,730
Cassava	10,800	10,600
Pulses	932	800
Vegetables	2,550	2,718
Fruit	2,750	2,880
Sugarcane	740	750
Plantains	1,900	2,000

Source: Food and Agricultural Organization Estimates (FAO)

Table 2.18

Education 1976

Primary enrolment	6,185,000
Secondary enrolment	682,000
Higher education	31,800

Source: Economic Commission for Africa (ECA)

Table 2.19

Health

	1970	1976
Hospital Beds	29,789	58,004
Doctors	2,683	4,492
Nurses	13,046	18,916

Source: Economic Commission for Africa (ECA)

Nations Development Decade. This rate of growth should make possible significant increase in the standard of living of the average citizen over the next five years (West Africa, March 1981; News Bulletin, Ottawa, January 1981).

Agriculture is to receive 13 percent of total capital investment to generate an annual growth rate of four percent, which is expected to eliminate shortages of food and industrial raw materials. Private investment is expected to be strong in agriculture and in manufacturing, which is forecast to show an average of 15 percent annual growth rate (West Africa, January 1981).

Education has enjoyed priority attention in the past development plans. The fourth plan is no exception. The highlights of the Federal and State educational programs as presented in West Africa Magazine of March 16, 1981, indicated that a total of ₦2.2 billion (C$4.6 billion) is allocated to the education sector, which amounts to 5.5 percent of the projected total Federal Government Capital Investment during the plan period.

The magazine further stated the major features of the educational programs under different subdivisions, as follows.

Secondary Education. Secondary education program involves mainly the consolidation and expansion of the 39 Federal Government boys and girls colleges located in every state in the country. During the period, two secondary schools will be built at the new Federal Capital, Abuja.

The expansion program is important because of the expected upsurge in enrolment at secondary school level by 1982 when the first stream of pupils from the Universal Primary Education Scheme (U.P.E.) will be turned out.

Technical Education. Technical education takes the second largest share after higher education of the planned capital allocation to the education sector (see Table 2.20). This is because of the very high priority that is attached to the training of technical manpower at all levels during the plan period (1981-85), as several giant industrial projects, such as the steel mills, are expected to come on stream before the end of the 1981-85 development period. Six new Federal Technical Colleges are to be built; these colleges will offer advanced craft courses. Table 2.20 shows the breakdown of grants allocation to subdivision of education sector (one Naira is equivalent to 2.1 Canadian Dollars).

The National Board for technical education is to build two centres of work experience where graduate from technical colleges and Polytechnics will acquire industrial experience by training on the job. It is the policy of the Federal Government to establish one polytechnic, one technical college and one Advanced Teachers' Training College in each of the nineteen states of the Federation (West Africa, March 1981).

Table 2.20

Nigeria's Fourth National Development Plan Grants Allocation to Educational Sector Federal Programs

Educational Sub Division	'Naira' Nigerian Currency
Total Allocation	₦ 2.2 billion
Higher Education	₦ 1.25 billion
Technical Education	₦ 354 million
Teachers' Education	₦ 194.8 million
Secondary Education	₦ 137.5 million
Student Financing	₦ 123 million
Adult Education	₦ 14 million
Others	₦ 126.7 million

Source: West Africa, No. 3320, March 16, 1981.

Manpower Situation in Nigeria

The consequences that every organization suffers when it does not have enough of the right people in the right places doing the right things, and not motivated to perform effectively, are so serious (Castetter, 1976, p. 9). Shortages of qualified personnel have been a major factor in the successful execution of projects under the successive national development plan in Nigeria.

The fourth Development Plan (1981-85), as previously stated in this chapter, was launched on January 12, 1981, by Alhaji Shehu Shagari, President of the Republic of Nigeria and Commander in Chief of the Armed Forces at a joint sitting of the House of Senate and the House of Representatives. Among the topics discussed was a section on manpower implications of the plan. In brief, the chapter indicated that demand for skilled and semi-skilled manpower, especially in the technical sectors, will exceed supply well beyond the plan period.

An estimation was made by the Federal Government of Nigeria that between 1981 and 1985, Nigeria's labour force is expected to increase from 32.24 million to 36.08 million. The number of "gainfully" occupied people will rise from 30.90 million to 34.82 million, which will represent a projected decline in unemployment rates from 4.2 percent to 3.5 percent (West Africa, March 1981).

Basing their estimates on the "Study of Nigeria's Manpower Requirements, 1977," the National Development planners stress that the manpower shortage in the next five years (1981-85) as reflected in staff vacancies for most of the high and intermediate level scientific and technical jobs is between 40 percent to 55 percent. The vacancy rate in administrative and other non-technical jobs was 15 percent to 30 percent.

Translated into projection of requirements for the 1981-85 Development Plan, this would mean that availability of people for all the following list (Table 2.21) of jobs will fall well below demand. The estimates take into account current stock and need to meet wastage through retirement or death. The planners also took three sub-sectors -- agriculture, construction and education--which are bound to play a vital part in the development and assessed their requirements.

The Development Plan outline illustrates the dramatic shortage of agricultural specialists in Nigeria. The West Africa Magazine (No. 3320, March 1981) put it in this manner:

> By comparing the ratios of extension workers to former, it was discovered that in India it is 1.200, in Kenya 1,250 and in Nigeria 1:2,500. It is planned that this ratio should be reduced to 1:800 by the end of the plan period (1981-85). (p. 554)

However, the plan envisages an expansion of dam construction and the irrigation of an additional 150,000 hectares. The manpower need here will be for a minimum of 300 of the professional category, namely irrigation engineers and mechanical engineers. A total of 1,500 technicians are

Table 2.21

Manpower Requirements for 1981-85 Development Plan (Estimate)

Category	1981-85 Requirements
Architects	2,780
Accountants	5,200
Civil and Structural Engineers	9,350
Mechanical/Electrical Engineers	3,750
Land Surveyors	1,300
Quantity Surveyors	1,050
Medical Doctors	9,470
Pharmacists	3,400
Dentists	410
Nurses and Midwives	56,930
Arch. Technicians	1,730
Civil Eng. Technicians	15,390
Statisticians	410
Administrative Officers	3,600
Executive Officers	5,400
Librarians	900

Source: West Africa Magazine, No. 3220, March 16, 1981, p. 544.

required and there is an estimated need for 2,500 artisans and craftsmen (West Africa, 1981).

In the construction sector, which for the purpose of the 1981-85 Development Plan consists of the need to construct a further 11,305 kilometers of road, 670 engineers, 2,080 technicians and 14,750 skilled and unskilled workers are needed.

The third sector discussed by the planners was education, and projected that universities alone will need 4,250 additional staff. Medicine and related disciplines require 1,350; engineering and technology--740; and other scientific disciplines another 940. All other subjects in the non-scientific sector will require 12,020 more staff. The Polytechnics are expected to expand their staff by 6,030 and primary schooling needs 128,000 additional teachers.

In a continuing effort to solve the manpower shortages in the country, the Federal Government planned to establish eight new universities by 1985. Seven of these will concentrate on technology. Student enrollment at universities is expected to increase by 16.4 percent annually from 57,700 in 1979-80 to 105,000 in 1984-85. In addition, an open university is to be established to cater for the needs of those who are unable to attend normal university sessions. During the same period (1981-85), Polytechnics enrollment will increase from 32,000 to 80,000 (West Africa, March 1981).

Training outside the formal education system is also being stepped up through adult education and through training programs wherever there is a major project. For example, the Basic Health Service Program is to be supplemented by establishment of schools of Health Technology.

Kano State Industrial Growth

Kano State economy is largely dependent on its natural resources and agriculture. Principal crops are groundnuts (peanuts) constituting half of Nigerian crop, millet, guinea corn, cotton, pepper, maize, cowpeas, rice, wheat and a wide variety of vegetables. Kano State is the largest producer of groundnuts (peanuts) in the whole Federation and before the oil discovery, groundnuts were the main source of the country's economy. The breakdown of the crops and total production (projected) for 1979-80 are as follows:

Crop	Production (tonnes)
Guinea corn	888,353
Millet	589,476
Maize	103,407
Rice	116,073
Cowpeas	140,320
Wheat	6,000
Cotton	7,700

Source: Kano State Diary, 1981, p. 23.

Kano State has also a considerable population of livestock and these include cattle (765,000), sheep (500,000), goats (1,616,788), donkeys (747,598), horses

(85,000), and camels (1,698). Kano State is also endowed with mineral resources, which include tin, columbite and cassiterite (Kano State Handbook, 1977, p. 34; Kano State Diary, 1981, p. 23).

Today, Kano State is ranked as the second largest commercial and industrial area in Nigeria. There has been a rapid proliferation of industrial establishments in the last five years, the bulk of which are made up of medium and large scale industries. At the time of this study, there were 280 such establishments in the state, with a combined annual output of ₦100 million (C$210 million) worth of manufactured products of a wide variety, which include furniture, enamelware, cosmetics, mineral waters, metalwork, groundnuts products, etc., some of which are exported. More than 50,000 people are employed in these industries (Kano State Diary, 1981).

Kano State has also the following industries: shoe factory, brewery, tannaries, and textile and clothing plants. The existing industrial estate (Bompai) is fully built up, as such a new industrial estate was established (Sharada) and an enormous area is being prepared for industrial development at Chalawa (New African Magazine, October 1978).

Kano State Manpower

As previously stated, the Federal Republic of Nigeria's demand for skilled and semi-skilled manpower exceeds supply, and Kano State is no exception. Kano State being the most heavily populated state in the Federation has no shortage of workers, but in 1978 there were very few skilled and semi-skilled workers available (New African, October 1978).

In the education sector, Kano State has made tremendous strides in educational development since the creation of states (1967). In 1981, there are 24 Teachers' Colleges with an enrollment of 24,055 students and 45 secondary schools with an intake of 31,477. In addition, there are three such schools run by voluntary agencies and two by the Federal Government (see Table 2.32 to 2.33 in Appendix C for comparison with 1975/76 figures).

Since Kano State is relatively highly industrialized, technical education was given top priority by the state government. At present there are 12 technical vocational institutions in Kano State with an intake of 4,143, as against five in 1976. There is also one commercial institution (Kano State Diary, 1981).

As regards to primary education, there are currently 3,050 primary schools with an intake of 1,083,142 students. This is supplemented by grant-aided Islamiya schools which number 87 with 30,565 students. For higher education, the Government has set up the Institute for Higher Education, which altogether embraces seven schools. One of the schools--School of Preliminary Studies--prepares students for university entrance. Others are: School of Social and Rural Development; School of Islamic Legal Studies; School of Agriculture; and Advanced Teachers' College Gumel.

Kano State Educational System

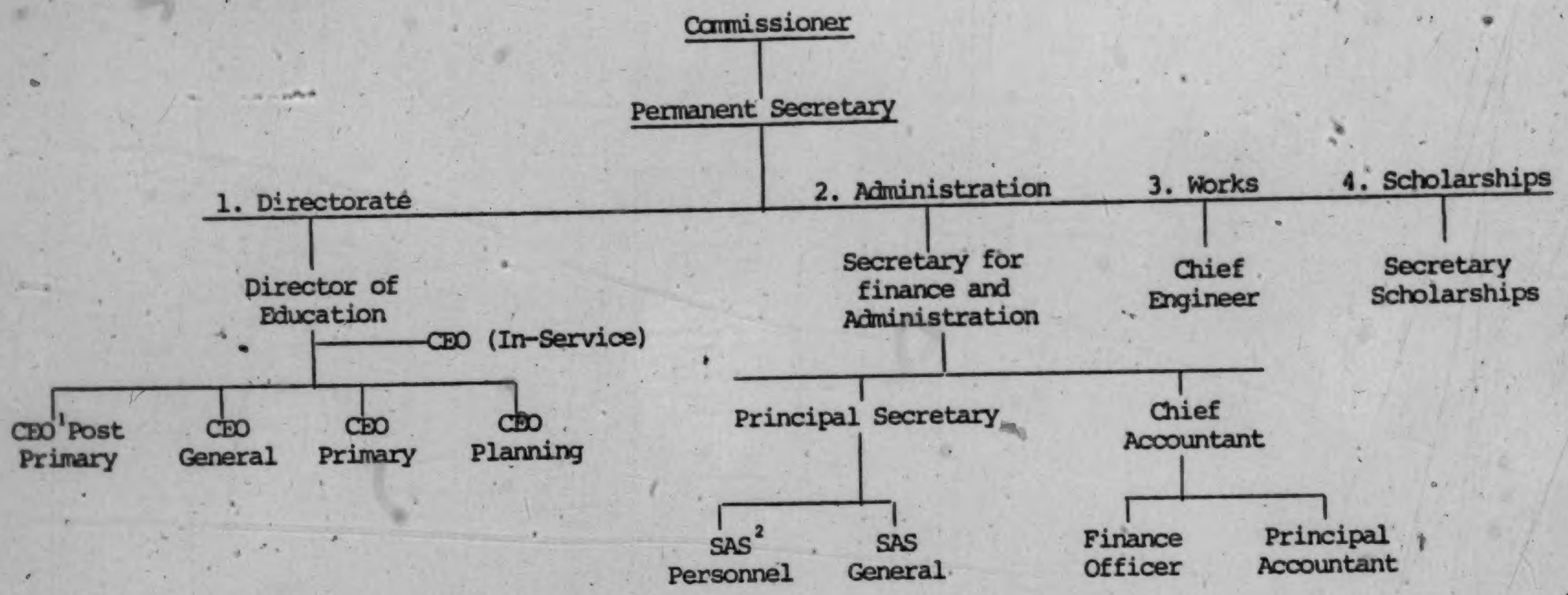
The Kano State Ministry of Education Administers the entire educational system with the exception of some post-secondary institutions. Educational policy matters are largely handled by the Minister of Education, which is also responsible for the inspection of schools, administering, and grading both entrance and final examinations for schools, certification of teachers and finance. The Ministry of Education has a commissioner with an executive permanent secretary as head. The organizational setup is depicted in Figure 4.

Kano State Ministry of Education is organized into the following four divisions: Directorate, Administration, Works and Scholarship (see Figure 4).

The directorate division is responsible for the professional aspect of education and all aspects of educational planning. The major responsibilities of this division includes supervision and quality control, curriculum development, collection of relevant educational data, storage and retrieval of these data, projection and assessment of physical, materials and manpower needs (Government views on the

Figure 4

Organizational Chart in the Ministry Headquarters


Commissioner
Permanent Secretary
1. Directorate
2. Administration
3. Works
4. Scholarships
Director of Education
CEO (In-Service)
CEO¹ Post Primary
CEO General
CEO Primary
CEO Planning
Secretary for finance and Administration
Principal Secretary
SAS² Personnel
SAS General
Chief Accountant
Finance Officer
Principal Accountant
Chief Engineer
Secretary Scholarships

Key: CEO[1] = Chief Education Officer
SAS[2] = Senior Assistant Secretary

Source: Government Views on the Report of Education, Review Committee, p. 17.

Report of Education Review Committee, 1976, p. 18).

The administration division is responsible for the operational and financial activities of the Ministry Duties of this division, which include: personnel matters of para-education staff; transport and communication facilities; annual budgets and estimates; expenditure control, vocates; (budget) allocation; returns and reports on items of expenditure; and indenting unallocated stores and bulk purchases (Government view on the Report of Education Review Committee, 1976, p. 18).

The works division has the responsibility for executing all building and physical programs of the Ministry of Education, as well as general maintenance of all physical facilities.

The scholarship division is responsible for awarding scholarships to qualified candidates to study at home or abroad in post-secondary institutions.

This part of the first section of the three sections of this chapter gives an overview of the Nigerian economy and its manpower situation. The area of economy provides the basis for content selection and area of occupational concentration.

Educating the Visually Impaired In Nigeria

This section has been given a separate section because this study is concerned with pre-vocational education for the visually impaired. The education of visually impaired came under the responsibilities of the Department of Special Education in the Ministries of Education. The purpose and objectives of special education in Nigeria and some of the recommendations made by the implementation committee for the National Policy on Education concerning special education was previously stated in Chapter I.

According to Wilson (1957), one major decision of the Oxford Conference of 1949 was that "blind children should be given full opportunity for general and vocational education in schools adequately equipped for the education of the blind and with qualified teachers," and that national systems should ensure "to all blind children education according to their interest and aptitudes at least equal to that which they would have received had they not been blind." Nigeria would not accept as a working policy anything short of these recommendations, especially since she was represented at that conference, and partly because she is a signatory to the United Nations Declaration of Human Rights, which include provisions similar to these recommendations (Daramola , 1976).

Nigeria is just making a start in putting both the recommendation made in the Oxford Conference of 1949 and the recommendation submitted in the final report of the implementation committee for the National Policy on Education (1978) into practice. The few schools for the blind that existed were run by humanitarian agencies, some of which only receive humanitarian grants from the Government through the Ministry reponsible for Social Welfare. With the launching of the Universal Free Primary Education (U.P.E.), Nigeria has committed itself to provide education for all children including the visually impaired. These commitments resulted in Ministries of Education taking the responsibilities for educating the exceptional child.

In its effort to provide education for all handicapped and gifted children in general and visually impaired in particular, the Federal Government of Nigeria has taken the following steps:

a) The establishment of a National Teachers' College for special education. This college is to train teachers and the supportive staff required by the schools, colleges, clinics and rehabilitation centres;
b) Provide scholarships to those students who are being trained at Ibadan University and institutions outside Nigeria in the area of special education;
c) Provide funds to all teacher training colleges in the country; to make provision for general and basic courses in the areas of special education, and to all prospective teachers who are to teach in normal schools but who require such knowledge to identify and help handicapped children. In addition, Ministries of education are to make arrangements to provide crash courses of in-service training for all teachers of the handicapped;
d) Federal and State Ministries of education would establish resource centres for the handicapped. These resource centres should include equipment for special teaching aids, a recording studio for the production of talking books and a braille press. (National Policy on Education, 1977, p. 24)

The Federal Government's White Paper on National Policy on Education, published in 1977 through the Ministry of Information, indicated that vocational schools are to reserve places for further education for the visually impaired children and adults. In addition to these educational opportunities, other multipurpose vocational schools are to be established as the need was identified. Following completion of their education, the Government is to provide suitable employment opportunities for handicapped workers as well as the possibility of establishing sheltered workshops for those visually impaired who after training are unable to bid equal terms with others for recruitment into commerce and industry.

The Nigerian educational system for the visually impaired operates both on an open education system and on a special school system. The open education system allows the disabled child to attend the same school with normal children from primary to university levels. By March 31, 1973, there were some 561 blind children in normal schools all over the country; five hundred of these children were attending primary school, 58 in colleges or secondary grammar schools, and three in the universities. In addition to the open education system, there are some 30 special (or residential) schools for the disabled. Those for the blind include the Sudan United Mission School, Gindiri, the Special Education Centre, Oji Rivers, the Sudan Interior Mission School, Kano, and the Paccelli School in Lagos

(Nigeria Handbook, 1977, p. 167). Tables 2.22 to 2.28 show the statistical data of the handicapped in special schools and other schools in Nigeria.

Vocational training is provided for disabled children who, having completed their primary education, are not sufficiently equipped academically for secondary education or who, due to family and other circumstances, can not continue with their education. Vocational training is carried out in Government Trade Centre, Yaba, which offers training in carpentry, painting, masonry, auto mechanics, metalwork, and sewing. There are five other vocational training centres (Oshodi, Ogbomosho, Kaduna, Oji and Rivers) which offer training in traditional crafts, home economics, telephony, mat weaving, pillow stuffing, packaging, and light workshop practice (Nigeria Handbook, 1977). Tables 2.29 and 2.30 show the statistical data of the handicapped at special schools, and those that are mainstreamed at both primary and post-primary schools.

Having considered the situation in which the visually impaired is educated in Nigeria, and types of educational programs available for the visually impaired, perhaps it might be advisable to briefly discuss the curriculum components that constitute a curriculum (program).

Virtually all writers on the subject of curriculum have been compelled to define the term "curriculum." There is much variance in the ways curriculum is defined. Smith, Stanley and Shores (1957) state that:

Table 2.22 Statistics of Handicapped Children by Categories in Special School

No	States	Names of School	B/PS	D/P.H.	S.D	M.R	PHY.H.	E.D.M.	Total
I.	Anambra	I. Special Education Center Oji River	93	I08	2I	I2		2I	254
		2. Special Education Center Enugu		I37		26			I63
			93	245	2I	38		2I	
2.	Bauchi								
3.	Bendel	I. Benin School for the Deaf		II0					II0
4.	Benue	I. St. Francis School for the Deaf, Vandeiky		I8					I8
5.	Borno								
6.	Cross-River	I. St. Joseph's Remedial Training Center, Iba					II		II
		2. St. Joseph's Blind Center, Obudu	60				5		65
			60				I5		
7.	Gongola								
8.	Imo								
		Coloumn Total	I53	375	2I	38	I5	2I	

Table 2.22 (cont'd)

No.	States	Names of Schools	B/PS	D/ P.H.	S.D.	M.R.	PHY.H.	E.D.M.	Total
9.	Kaduna	I. Torrey's Home School Zaria							
I0.	Kano	I. School for Handicapped Children	I8	I8		I3	5		54
II.	Kwara	I. Kwara State School for the Deaf and Blind	4	34					38
I2.	Lagos	I. Pacelli School for Blind Children	95						95
		2. National Orthopaedic Hospital School Igbobi					94		94
		3. Atunde Olu School, Sululere					I30		I30
		4. Wesley School for the Deaf Children, 30 Ajaọ Street, Sululere		370					370
		5.Child Care and Treatment Home School, Akoka	3	5	8	6	55	42	II9
			98	375	8	6	270	42	
I3.	Niger								
		Coloumn Total	I20	427	8	19	275	42	

Table 2.22 (cont'd)

No.	States	Name of School	B/PS	D/P.H.	S.D	M.R.	PHY.H.	E.D.M.	Total
I4.	Ogun	I. School for Handicapped Children Ilaro		23		I6			39
		2. School for Handicapped Children Sagamu, Remo	4	43		I8	I6		8I
		3. School for Handicapped Children Iberekodo Abeokuta		29		9	I		39
		4. School for Handicapped Children Ijebu Ode	3	29	II	I9	8		70
			7	I24	II	62	25		
I5.	Ondo	I. Ondo State School for the Blind	II						II
		2. Ondo State School for the Deaf P.O.Box 538 Akure		60					60
		3. Ondo State School for Handicapped Children, Ondo Ilepe Ikare							
			II	60					
I6.	Oyo	I. Blind Center Obgomosho	2I						2I
		2. Enuwa School for the Deaf		42					42
		3. Oluyole Cheshire Home School					3I		3I
		4. School for Handicapped Children Onireke							
		5. Ibadan School for the Deaf		248					248
			2I	290			3I		
		Coloumn Total	38	474	II	62	56		

Table 2.22 (cont'd)

No.	States	Name of Schools	B/PS	D/ P.H.	S.D.	M.R.	PHY.H.	E.D.M.	Total
I7.	Plateau	I. Plateau School for the Deaf		47					47
		2. Gindiri School for Blind Children	20		I7	I4	I5		II0
			20	47	I7	I4	I5		
I8.	Rivers								
I9.	Sokoto								
		Coloumn Total	20	47	I7	I4	I5		Grand Total
		Total	332	I,32I	57	I33	37I	63	2,277

Source: Federal Ministry of Social Development, Youth, Sports and Culture (I98I)

Table 2. 23

Statistical Data of the Handicapped by Institution; Categories and States

States	Bendal State					Cross-River State				
Types of Institution / Categories of Handicap	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training
Blind and Partially Sighted, (B & PS)	2					20	I0	7		
Deaf and Partially Hearing (D & PH)	4					I5	I0	5		
Physically Handicapped (P.H)	2I		9			24	7	5		
Maladjusted and Emotionally Disturbed (M & ED)	I2		6			I5	6			4
Mentally Retarded (M.R)	25					2I				
Speech Disorder (S.D)	33		8			20	8			
Learning Difficulties (L.D)	56					2I	8			
Total	I53		23			I36	47	I7		4
Ground Total	I76					206				

Source: Federal Ministry of Social Development, Youth, Sports and Culture (I98I)

Table 2.24

Statistical Data of the Handicapped by Institution; Categories and States

States	Gongola State					Kaduna State				
Types of Institution / Categories of Handicap	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training
Blind and Partially Sighted, (B & PS)	I5			I4		56				
Deaf and Partially Hearing (D & PH)	I2		4		I	26	2			
Physically Handicapped (P.H)	8		8			42	I			
Maladjusted and Emotionally Disturbed (M & ED)	2					II				
Mentally Retarded (M.R)						I				
Speech Disorder (S.D)	3		I			7		2		
Learnihg Difficulties (L.D)			5			78		4		
Total	40		I8	I4	I	223	3	6		
Ground Total			73					232		

Source: Federal Ministry of Social Development, Youth, Sports and Culture (I98I)

Table 2.25

Statistical Data of the Handicapped by Institution; Categories and States

States	Lagos State					Niger State				
Types of Institution Categories of Handicap	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training
Blind and Partially Sighted, (B & PS)	6							7		
Deaf and Partially Hearing (D & PH)	4					5		I0		
Physically Handicapped (P.H)	I8					2		8		
Maladjusted and Emotionally Disturbed (M & ED)						2				
Mentally Retarded (M.R)										
Speech Disorder (S.D)	I2	3				2		I6		
Learning Difficulties (L.D)								4		
Total	40	3				II		45		
Ground Total	43					56				

Source: Federal Ministry of Social Development, Youth, Sports and Culture (I98I)

Table 2.26

Statistical Data of the Handicapped by Institution; Categories and States

States	Ondo State					Oyo State				
Types of Institution / Categories of Handicap	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training
Blind and Partially Sighted, (B & PS)	5					200				
Deaf and Partially Hearing (D & PH)						34	5			
Physically Handicapped (P.H)	6					I20	II			
Maladjusted and Emotionally Disturbed (M & ED)						70	I2			
Mentally Retarded (M.R)						3				
Speech Disorder (S.D)	3					I00	30			
Learning Difficulties (L.D)						I20	I5			
Total	I4					647	73			
Ground Total	I4					720				

Source: Federal Ministry of Social Development, Youth, Sports and Culture (I98I)

Table 2.27

Statistical Data of the Handicapped by Institution; Categories and States

States	Plateau State					Rivers State				
Types of Institution Categories of Handicap	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training
Blind and Partially Sighted, (B & PS)	20									
Deaf and Partially Hearing (D & PH)						I				
Physically Handicapped (P.H)						I				
Maladjusted and Emotionally Disturbed (M & ED)	I									
Mentally Retarded (M.R)										
Speech Disorder (S.D)										
Learning Difficulties (L.D)										
Total	2I					2				
Ground Total	2I					2				

Source: Federal Ministry of Social Development, Youth, Sports and Culture (I98I)

Table 2.28

Statistical Data of the Handicapped by Institution; Categories and States

States	Sokoto State									
Types of Institution Categories of Handicap	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training	Secondary Grammar	Secondary Commercial	Teacher Training	Vocational Training	Technical Training
Blind and Partially Sighted, (B & PS)	20		62	4						
Deaf and Partially Hearing (D & PH)	25		I8	4						
Physically Handicapped (P.H)	I8		20	4						
Maladjusted and Emotionally Disturbed (M & ED)	I0		I8	4						
Mentally Retarded (M.R)	5		32							
Speech Disorder (S.D)			9							
Learning Difficulties (L.D)	I65		254							
Total	243		405	I6						
Ground Total	664									

Source: Federal Ministry of Social Development, Youth, Sports and Culture (I98I)

Table 2.29

Statistics of Handicapped by Categories within the Integration or Open System (Primary)

No	States	No. of Schools	B/PS	D/P.H.	S.D.	M.R.	PHY.H.	E.D.M.	TOTAL
I.	Anambra	220	77I	266	24	23	243	I42	I,469
2.	Bauchi								
3.	Bendel	2I7	84	I28					
4.	Benue								
5.	Borno								
6.	Cross R.	I7	84	I28			22I		433
7.	Gongola								
8.	Imo								
9.	Kaduna								
I0.	Kano								
II.	Kwara								
I2.	Lagos								
I3.	Niger								
I4.	Ondo								
I5.	Ogun								
I6.	Oyo	40	48	4I3	3I	34	33	24	583
I7.	Plateau		4I	85		I56	I04		386
I8.	Rivers								
I9.	Sokoto								
	TOTAL	494	944	692	55	2I3	60I	I66	3,365

Source: Federal Ministry of Social Development, Youth, Sports and Culcure (I98I)

Table 2.30

Statistics of Handicapped by Categories
within the Integration or Open System (Post-Primary)

No	States	No. of Schools	B/PS	D/P.H.	S.D.	M.R.	PHY.H.	E.D.M.	TOTAL
I.	Anambra	I6	42	7			I5	80	I60
2.	Bauchi	27	I4	I2			5	58	II6
3.	Bendel								
4.	Benue								
5.	Borno								
6,	Cross R.	23	II	I			84	II9	238
7.	Gongola								
8.	Imo								
9.	Kaduna								
I0.	Kano	3	3	I				7	I4
II.	Kwara	5	I5	I0				30	60
I2.	Lagos								
I3.	Niger								
I4.	Ondo								
I5.	Ogun								
I6.	Oyo								
I7.	Plateau	I	I3	I			2	I7	34
I8.	Rivers								
I9.	Sokoto								
	TOTAL	75	98	32			I06	3II	622

Source: Federal Ministry of Social Development, Youth, Sports and Culcure (I98I)

> A sequence of potential is a setup in the school for the purpose of disciplining children and youth in group ways of thinking and acting. This set of experiences is referred to as the curriculum. (p. 3)

Firth and Kimpston (1973) stated that:

> Curriculum is a vital, moving, complex interaction of people and things in a fluid setting. It encompasses questions to be debated, forces to be rationalized, goals to be illuminated, programs to be activated, and outcomes to be evaluated. (p. 3)

Such variations in definition led Beauchamp (1957) to conclude that there have been represented in the literature three discrete sets of associations with the concept of curriculum; namely, the experience notion, the social design notion, and the psychological notion. For the purpose of this study, the definition by Derr (1977) is used. Derr states:

> Curriculum is used to refer to a set of things, which are taught, designated for learning, and given to pupils to be learned by them. (p. 152)

The existence of differences in curriculum definitions sets the stage for differences in definitions of curriculum design. Taba (1962) defines curriculum design thus:

> A statement which identifies the elements of the curriculum, states what their relationships are to each other, and indicates the principles of organization and the requirement of that organization for the administrative conditions under which it is to operate. (p. 421)

Curriculum Components

The review of literature indicated that curriculum specialists such as Tyler (1949), Smith _et al._ (1957), Taba (1962), Beauchamp (1975), and Zais (1976) identified the following as main elements or components that constitute a curriculum. The elements include: a philosophical statement; aims, goals, and objectives; curriculum content; learning experiences; and evaluation.

The functions of a philosophical statement in designing a curriculum is to give direction to both the society and educational system of the society (Tyler, 1949; Zais, 1976). Thut (1957), in Zais (1976, p. 104), defines philosophy as "the search for knowledge of the good," taking "the good" to include "any or all principles, acts, arrangements, concepts, and purposes which enhance the quality of our subsequent experience."

Tyler (1949), writing on the use of philosophy to select educational objectives, states:

> In essence, the statement of philosophy attempts to define the nature of a good society. One section of an educational philosophy would outline the values that are deemed essential to a satisfying and effective life. (p. 34)

Aims, Goals and Objectives

No universal agreement as to the precise meaning of aims, goals and objectives exists among curriculum writers, and these words are often used as synonyms. The confusion that exists on differences between these terms--"aims," "goals" and "objectives"--is illustrated in the following definitions. Evans and Herr (1978), in their book foundations of vocational education, stated that:

> There are three basic objectives in any public school vocational education curriculum. Listed in chronological order of their acceptance as goals, they are: meeting society's needs for workers, increasing the options available to each student, and serving as a motivating force to enhance all types of learning. (p. 4)

Taba (1962) explained objectives of education in this manner:

> An educational program, like any activity, is directed by the expectations of certain outcomes. The chief activity of education is to change individuals in some way: to add to the knowledge they possess, to enable them to perform skills which otherwise they would not perform, to develop certain understandings, insights and appreciations. The statements of these expected or desired outcomes are usually called either educational aims or educational objectives. (p. 194)

Zais is one author who attempted to distinguish between curriculum aims, goals, and objectives. Zais (1976) describes aims as "life outcomes," targets removed from the school situation to such an extent that their achievement is determinable only in that part of life well after the completion of school. Goals he refers to as "school outcomes," which are long range and reflect schooling in general rather than some specific level of school. Objectives are viewed as "specific outcomes" of classroom instruction (p. 306).

Taba (1962, p. 196), Silvius and Bohn (1961, p. 95) all agree with Zais on this position as do Posner and Rudnitsky (1978). The latter two authors made their position clear by stating that:

> Zais' description of goals and objectives corresponds closely to our notions of educational goals and intended learning outcomes respectively. . . . Goals are attributes or characteristics of the well educated person rather than the specific skills or knowledge that constitute that education. (p. 43)

Generally, aims, goals and objectives give direction to decisions regarding what the curriculum should cover, what to emphasize, content to select and which learning experience to stress and what to evaluate.

There is universal agreement on the importance of aims, goals and objectives, which directs school systems and programs, but there are different opinions on the sources from which aims, goals and objectives should be derived. Tyler (1949), Taba (1962), and Zais (1976) indicated that aims, goals and objectives are derived from the imperical sources (society and the learner), philosophical sources and subject matter sources. The same three authors agree that any curriculum based on any one of the sources is "incomplete," "limited in usefulness" and can not on its own be justified. On this issue Tyler (1949) wrote:

> No single source of information is adequate to provide a basis for wise and comprehensive decision about objectives of the school. Each of these sources has certain values to commend it. Each source should be given some consideration in planning any comprehensive curriculum program. (p. 5)

On the other hand, some curriculum specialists believe objectives eminate from the culture. The proponents of culture as the source of educational objectives include Smith, Stanley and Shores (1957), Johnson (1967) and

Beauchamp (1968). Smith et al. (1957) stated:

> The objectives of education are derived from the culture. Since the culture consists of the ideals, ideas, methods of thinking, skills, attitudes, institutions and other man-made aspects of envirionment, whatever ends the school attempts to achieve will be ends recognized as desirable in the cultural system to which the schools belongs. (p. 107)

Educational goals may be classified into four categories: cognitive, syntactical, affective, and applicative (Beauchamp, 1975, p. 118). The first, cognitive, includes the basic concepts of knowledge, key ideas, generalizations, principles and laws. The second, syntactical, consists of modes of inquiry for solving problems in the areas of organized knowledge such as observation, classification, inference, and prediction. It also includes the psychomotor skills of communication. The third, affective, consists of the development of attitudes and appreciations; and the fourth, applicative, includes the development of abilities to make applications of learning to social and personal problems of living.

Curriculum Content

One of the special functions of the curriculum of formal education is to select and arrange content, so that the desired curriculum aims, goals and objectives are most effectively achieved and also that the most important and desirable knowledge is effectively transmitted.

Zais (1976) agrees with the definition given by Saylor and Alexander (1966). They define curriculum content thus:

> Those facts, observations, data, perceptions, discernments, sensibilities, designs and solutions drawn from what the minds of men have comprehended from experience and those constructs of the mind that reorganize and rearrange these products of experience into love, ideas, concepts, generalizations, principles, plans, and solutions. (p. 160)

Hyman (1973) identifies three elements that constitute a curriculum content. Hyman defines content as:

> Knowledge (i.e. facts, principles, definitions) skills and processes (i.e. reading, writing, calculating, communication) and values. (p. 4)

The primary basis for content selection must always be the stated aims, goals and objectives of the curriculum; this is the point held by many curriculum specialists, including: Taba (1962), Zais (1976), and Smith _et al._ (1957). To select the content that is most effective and efficient in bringing about the realization of curriculum aims, other auxiliary criteria comes into play. Curriculum writers identified a large number of such criteria. After an extensive review of literature, four of the auxiliary criteria were identified as commonly accepted standards for selection. They are: significance, utility, interest, and human development.

Johnson (1968, pp. 74-75) suggests that the criteria for content selection include: significance, relevancy, interest and democratic value orientation. Taba (1962, pp. 267-284) proposes the following criteria for selecting curriculum content: validity and significance, usefulness, balance of breadth and depth, provision for achievement of a broad range of objectives, learnability and adaptability, as well as appropriateness to the needs and interests of the learner.

Learning Experience

As was the case with curriculum content, the primary standard for judging the merit of learning activities is how well they contribute to the attainment of curriculum aims, goals, and objectives. Tyler (1949), Taba (1952) and Zais (1976) all indicated that curriculum content and learning experience are two distinct curriculum components. Tyler (1949) on this issue wrote:

> The term "learning experience" is not the same as the content with which a course deals nor the activities performed by the teacher. The term "learning experience" refers to the interaction between the learner and the external conditions in the environment to which he can react. (p. 63)

In planning an educational program to attain given objectives, certain general principles have to be followed in deciding on the particular educational experiences to be provided. Such principles include: first, a student must have experiences that give human opportunity to practice the kind of behavior implied by the objective; second, that the learning experience must be such that the student obtains satisfaction from carrying on the kind of behavior implied by the objectives; third, that the reactions desired in the experience are within the range of possibility for the students involved; fourth, that there are many particular experiences that can be used to attain the same educational objectives. The fifth general principle is that the same learning experience will usually bring about several outcomes (Tyler, 1949, pp. 65-67).

Evaluation

Evaluation is an essential component of curriculum, as it will help indicate the effectiveness and worthwhileness or otherwise of the entire curriculum. Beauchamp (1975, p. 126) states that "rarely do curriculums contain evaluation schemes or specific implementation instructions.

There is a controversy among curriculum specialists as to the definition of evaluation. On this issue Taba (1962) comments:

> The use of the term "evaluation" to cover a great variety of meanings and to describe many processes has caused considerable confusion. . . one can evaluate anything about the schools curriculum. Its objectives, its scope, the quality of personnel in charge of it, the capacities of students, the relative importance of various subjects, the degree to which objectives are implemented, the equipment and materials, and . . . the term evaluation may be used to refer to different processes. It may be simply a rendering of a value judgement based on sheer opinion. . . the term evaluation is also used to describe a process which includes a careful gathering of evidence on the attainment of objectives, a forming of judgements on the basis of that evidence, and a weighing of that evi-evidence in the light of the objectives. . . . Finally, evaluation can be carried on at a variety of levels and by different categories of people. (p. 310)

Crombach (1963) identified three uses for evaluation: course improvement decisions, decisions about individual students, and administrative regulations. Beauchamp (1968, p. 37) identifies four dimensions of curriculum evaluation, which include evaluation of: teacher use of the curriculum, curriculum design, pupil outcomes, and the curriculum system. Taba (1962) outlined six items as criteria for evaluation of a program. Included are: consistency with objectives, comprehensiveness, sufficient diagnostic value, validity, unity of evaluative judgement and continuity.

Smith _et al._ (1957), Taba (1962), Beauchamp (1968), Tyler (1957) and Zais (1976) identified the aims, goals and objectives of the curriculum as the basic criteria for evaluation. No one doubts that evaluation serves an important role in the curriculum, teaching, and learning.

There are mainly two different types of evaluation, namely summative and formative evaluation. The principal distinction between the two have to do with purposes, time, and level of generalization. Zais (1976) defines the two kinds of evaluation in this way:

> Summative evaluation is conducted in order to obtain a completed curriculum. . . and provides a terminal judgement on the completed product in overall, general terms. Formative evaluation is conducted during the curriculum development process for the additional purpose of providing data that can be used to "form" a better finished product. Thus, formative evaluation takes place at a number of intermediate points during the development of a curriculum. (p. 38)

This section gives an insight to the educational situation for the visually impaired in Nigeria.

Identification of curriculum components was made which will assist the researcher to design the proposed program.

Related Literature

This section deals with a brief history of the establishment of schools and institutions for the visually impaired in Europe, United States and Nigeria. Also included are definition and causes of visual impairment, incidence of visual impairment in West Africa, associated handicaps and educational programs for the visually impaired. Reading and writing, academic achievement, instructional adaptation and specialized materials and equipment used by the visually impaired children are part of the content of this section. Finally, a brief discussion on the visually impaired child in the school workshop is given. Names and addresses of agencies serving the visually impaired in Nigeria are also included.

Establishment of Schools for the Visually Impaired: History

Valentin Hary (1745-1822) established the first actual school for the blind (the National Institution for Young Blind People) in Paris in 1784. Hary emphasized handicraft related education (basketry, chaircaning, sewing, spinning, weaving) and this established a pattern that was to be followed for years to come.

Before the turn of the century, there were other schools for the blind established in Liverpool (1791) and Bristol, England (1793) and in Edinburgh, Scotland (1793). By 1810, educational programs had been established in Vienna, Berlin, Milan, Amsterdam, Prague, Stockholm, Zurich, and Dubbin (Napier, 1972, in Gearheart, 1980). These schools were established by interested individuals and religious organizations. The schools were mainly elementary schools, and they included craft-oriented vocational training (Gearheart, 1980).

The motivation for the first solid concern for education for the blind in the United States apparently was reports of the success of the Hary School given by Dr. John D. Fisher when he returned from medical studies in France in 1826 (Napier in Gearheart, 1980). As a result, the New England Asylum for the Blind was incorporated in 1829, and in 1831, Dr. Samuel Gridley Howe was appointed director. Howe went to Europe to study their schools and find teachers. Howe came back with certain principles that he believed should be used to guide education of the blind in the United States. These principles were as follows (Farrell in Gearheart, 1980):

> 1. All blind children should be educated in accordance with their personal needs and the likelihood that they can apply such training in their community;
> 2. The curriculum for schools for the blind should be similar to educational programs for non-handicapped children, but should include more music and crafts; and
> 3. The major goal of education of the blind should be that they might be able to be contributing members of their home communities. (p. 146)

After the founding of the New England Asylum for the Blind (which was renamed the Perkins Institution and Massachusetts Asylum for the Blind), a number of other schools were initiated in other states in the eastern part of the United States. Residential schools, following the pattern established by Howe in the 1830's, were the major vehicle for education of the blind in the United States for more than 100 years. Only recently has this pattern changed substantially, and in 1980, only about one third of all visually impaired children were educated in residential programs. The remainder were part of some type of special educational day program, with most of these programs housed in public schools (Gearheart, 1980).

Unlike education of the blind, which has existed for many centuries, education of the partially sighted is a twentieth century development. According to Smith (1938), special school classes for partially sighted children originated in England in 1908. In the United States, the first class for the partially sighted was initiated in Boston in 1913 (Gallagher and Kirk, 1979).

Before the introduction of Western education to Nigeria, the visually impaired were educated together with the sighted children in the sense that children were educated using the traditional educational system, whereby parents took the responsibility of training their children in whatever occupation or trade they practiced. For example, if the father was a farmer, the son was trained in farming.

After the introduction of the formal western educational system, Nigeria operates on "open" education (integrated) system for the visually impaired. The first pilot scheme of integrating the visually impaired into normal school was launched in the Katsina Emirate of Northern Nigeria (now Kaduna State) in 1960. By 1967, over 100 schools in Nigeria had accepted visually impaired children into normal classes (Cookey, 1966, p. 52).

Visual Impairment Defined

The visually impaired are a highly heterogeneous group whose one common characteristic is some degree of visual loss. Despite their commonality blindness is a term which covers a wide range of disabilities, from the very rare complete blindness resulting in inability to even distinguish light from dark through less profound loss of vision to partially sighted children who, while not suitable for education in a normal school, can nevertheless make much valuable use of their limited sight with the assistance of appropriate aids.

A comprehensive survey of the blind conducted by the World Health Organization (WHO) in 1966 lists 65 different definitions of visual impairment throughout the world (Jan, Freeman and Scott, 1977, p. 17). There is no universally accepted definition of blindness; because of this, the definition of blindness must be related to the purpose for which sight is needed. A child may well be "educationally" blind while retaining sufficient vision for a fair degree of mobility (Commonwealth Secretariat, 1972).

Barraga (1976) indicates that in very recent years there has been an attempt, within and across disciplines, to refine terminology and definitions, and to minimize confusion. In a representative list of levels used over the past 150 years, Gearheart (1980) found such terms as medically blind, braille blind, economically blind, legally blind, vocationally blind, subnormal vision, partially seeing, visually defective, visually disabled, visually impaired and many others. Further complication is that defective vision frequently accompanies other types of handicaps.

Causes of Visual Impairment

There are many causes of visual impairment. The most common causes are refractive errors, which include: Myopia (nearsightedness), hyperapia (farsightedness), and astigmatism. Of these, the most common is Myopia (Barraga, in Lowenfield, 1973), usually caused by improper structural alignment of the cornea, or an eyeball that is "too long" (Gearheart, 1980; Hallahan and Kauffman, 1978; Gallagher and Kirk, 1979).

In the developing countries such as Nigeria and in areas of moderate incidence the most serious and frequent causes tend to be cataract, glaucoma, keratomalacia, trachoma, measles and smallpox (Wilson, 1964, p. 1). Other principal causes include congenital syphilis and congenital defects, optic atrophy, leprosy and other bacterial infections, accident, retinoblastoma and cancerous growths, diabetes, spinal meningitis and river blindness. These are the immediate causes of blindness, but in the developing world these causes are aggravated and intensified by a number of directly related factors such as poor hygiene, ignorance, poverty, malnutrition, neglect, local usages and prejudices, lack of facilities for general and early treatment, and the inaccessibility of hyperendemic areas (Quarcoopome, 1966, cited in Commonwealth Secretariate, 1972).

In the more developed countries, the incidence of blindness has reached a steady and apparently irreducible rate with the spread of medical facilities, clean and adequate water supplies, and a general standard of living which makes possible reasonable and varied diet for all. The stage reached by developing countries, their standard of living can almost be measured in terms of the incidence and causes of blindness (Commonwealth Secretariat, 1972).

Incidence of Visual Impairment in West Africa

At the time of this study, no accurate information yet existed regarding the incidence of blindness in most developing countries. An estimate of world blindness gives a total of some 15 millions increasing annually by 400,000, which is an overall incidence of 450 per 100,000 of population. The term "incidence" is used to define the number of new cases of disease or impairment in the population at risk per unit time, usually a year (Jan, Freeman, Scott, 1977).

The incidence of blindness per 100,000 of total population in a more developed country tends to run at about 200; among children in these countries the frequency is approximately 50. For West Africa, it has been suggested that plans could be based on assumed incidences of 700 for Nigera and 900 for Gambia, Ghana and Sierra Leone (Commonwealth Secretariat, 1972). Translated into individual children, the magnitude of the humanitarian and educational problem became apparent -- fifty thousand blind children in Nigera. Table 2.31 shows an estimation of incidences in some developing commonwealth countries.

Most tropical diseases are endemic to Nigeria. The prevalent diseases include: malaria, tetanus, measles, tuberculosis, dysentry and meningitis; other major diseases are riverblindness, leprosy, trypanosomiasis (sleeping sickness) and worm infection. A large scale campaign was launched in 1975 against both malaria and river blindness, in cooperation with the World Health Organization (who) and small pox has now been brought under control by an intensive vaccination campaign (Commonwealth Institute, 1976).

Table 2.31

Visual Handicap

Estimated Incidences in some Developing Commonwealth Countries

Area/Country	Total Population	Incidence of Visual Handicap per I00,000	Approximate Number of Visually Handicapped Persons	Approximate Number of Visually Handicapped Children
World-wide	4,3I8m.	450	I9m.	2m.
Commonwealth	890m.	700	6.25m.	652,000-950,000
Caribbean	4m.	250-400	I0,000-I6,000	I,000
Africa	3I0m.	856	2.6m.	260,000-390,000
West Africa	75m.	I056	790,000	I15,000
Cyprus	630,000			60
Ceylon	I2,250,000	450	55,000	5,500-7,700
Fiji	500,000	200	I,000-I,200	200
Gambia	360,000	900-I056	3,250-3,800	325-570
Ghana	8,600,000	900-I056	77,400-90,000	7,740-I3,500
India	533,000,000	900	4.8m.	480,000-720,000
Kenya	I0,500,000	730	76,650	8,500+I7,000 partially sighted
Malawi	4,400,000	890	40,000	3,000
Malaysia	I0,600,000	250	26,500	I3,250
Nigeria	64,000,000	700-I056	448,000-676,000	45,000-I00,000
Pakistan	II2,000,000	I024	I.23m.	I23,000-I85,000
Sierra Leone	2,500,000	900-I056	22,500-26,500	2,250-4,000
Singapore	2,000,000	200	4,000	400-600
Tanzania	I3,000,000	730	75,000-90,000	8,000+I6,000 partially sighted
Uganda	8,300,000	630	50,000+I00,000 Partially Sighted	6,000+I2,000 partially sighted
Zambia	4,200,000	890	37,400	4,500
Hong Kong	4,000,000	250	I0,000	300+800 partially sighted

Source: Education in the Commonwealth Countries. Number Five, I972 page 7.

Associated Handicaps

A study conducted in British Columbia, Canada, shows that 70 percent of the children in the total study population (545 visually impaired individuals) had one or more additional handicaps. The study population includes anyone born in British Columbia in the years 1944 to 1973 who developed blindness while in the zero to 19 years-of-age group. The commonest additional handicaps were mental retardation (24 percent), hearing loss (10 percent), epilepsy (8 percent), congenital heart defect (7 percent), and cerebral palsy (6 percent) (Jan, Freeman and Scott, 1977).

In the developing countries, where much blindness results from diseases rather than congenital defects, associated handicaps include 60 percent of brain damaged children, 80 percent of mongols, 75 percent of children with cyanotic heart disease and 25 percent of educationally subnormal children (Commonwealth Secretariat, 1972).

Educational Programs for the Visually Impaired

Taylor, cited by Lowenfeld (1973), indicated that there are a variety of programs and a considerable diversity of services for the visually impaired developed by educators, parents and others. These programs and services may be interpreted as an indication of the desires and efforts to provide the visually impaired with the following:

> 1. An education appropriate to the visually impaired individuals' capabilities; and
> 2. Awareness of interests and needs, and consider feasible goals compatible with the life patterns of the visually impaired child, his parents, and the community of which he is an integral part. (Lowenfeld, 1973, p. 155)

The variety, scope and quality of services to a visually impaired child differ according to the community in which he lives and services it provides for all children.

Administrative Organizations

There are a number of administrative plans that had been implemented for children with visual impairments. Dunn (1973) identified six organizational arrangements for the education of the visually impaired children, which include:

> 1. The teacher-consultant plan enables children to enroll in the regular classes in schools near their homes with provision of direct or indirect services as needed by a teacher consultant;
> 2. The itinerant teacher gives more time to individual instruction and less time to indirect services than the teacher consultant;
> 3. The resource-room or resource-teacher plan is an organizational pattern in which children do virtually all of their work within the regular class, but go to the resource teacher in a special room for help and materials as the need arises;
> 4. The co-operative class is an organizational pattern in which children are registered with the special teacher but attend regular classes during a sizable portion of each day;
> 5. The special class is organized as a separate unit in which children are instructed by the special teacher throughout the school day in a self-contained room; and
> 6. The residential school plan provides a complete educational program with residential facilities for children. (p. 432)

Stephens and Birch (1969) classified the administrative plans for the visually impaired into seven types, while Paaske (1969) identifies five administrative plans, specifically for developing countries. These include the following:

> a) Total integration in which the blind children attend normal classes but receive certain lessons from an itinerant teacher;
> b) Special classes attached to day schools. This system is best appropriate where sufficient visually impaired children are available to form the classes;
> c) Centres for handicapped children. Classes for visually impaired children in special day schools providing for children with a range of handicaps;
> d) Weekly boarding at ordinary schools or special schools. This means that provision can be made for children who cannot attend school daily, but without cutting them off from their families for extended periods;
> e) Special boarding schools. This is the traditional form of provision for blind children. (Commonwealth Secretariat, 1972, p. 13)

Basically, these organizational arrangements can be categorized into two distinct programs (Avery, 1968; Lowenfeld, 1964). There is the public school program in which the visually impaired children attend the same school with the sighted children. Then, there is the residential school arrangement whereby handicapped children are educated in their own exclusive special schools.

Taylor, in Lowenfeld (1973), indicated that in the recent years there have been many changes in the services offered through these administrative programs, patterns, and in the ways in which they are co-ordinated for the education of all visually impaired children. Although for many years there presisted a dichotomy between programs for the blind and those for the partially sighted (usually separated on the basis of visually acuity measurements), nevertheless, according to the Directory of School Programs for Visually Handicapped Children - Fall 1968, 89 percent of the programs served both blind and partially seeing children.

Residential Schools

The residential school is an organizational pattern whereby a boarding facility is provided for some or all of the visually handicapped children who may either attend a segregated school on the campus or may receive some of their educational services through a co-operative arrangement with the public or private schools of the community in which the residential school is located.

Bledsoe (1971) discerns three types of present-day residential school patterns (Lowenfeld, 1973):

> 1. The classic type is the school which in most of its modifications has kept rather strictly to its original purpose of educating blind children and youth. It may tailor its program to meet individual needs, and it may have certain special departments such as a program for the deaf-blind. But basically, it is still a school for blind children from kindergarten through high school.
> 2. The Centre type is the school which has modified its original pattern a great deal to become a kind of centre with special services for blind children and youth.
> 3. The hospital type is the school which makes such a specialty of serving multiply handicapped children. (p. 18)

Public Schools

In the public school arrangement, three plans are used to cope with visually impaired children. There is the full-time special class in which all academic instruction is given by a special teacher in a classroom reserved for visually impaired children. There is the resource teacher plan in which the handicapped children are enrolled in the regular classes for most of their instructions, but go to the resource teacher in the special room for specialized instruction and to use special equipment. Finally, there is the itinerant teacher plan in which a specialist teacher of the visually impaired goes from school to school to give part-time individual instruction to students and to give consultant services to regular classroom teachers who may have blind children in their classes (Daramola, 1976).

In the history of modern development of education for the blind, the segregated school program antedated the integrated arrangement; in fact, the practice of common education of the blind with the sighted is older than the idea of segregated school for the visually impared (Tonkovic, 1967).

Both Avery (1968) and Lowenfeld (1952) seems to agree that neither of the two arrangements is superior to the other as such; says Lowenfeld (1952): "The question of which facility is better, the residential school or the class for blind children in public schools, can not be answered abstractly. It must be considered for each child individually with all its personal ramifications" (Daramola, 1976, p. 101). The conclusion is that each has its own merits and demerits.

The merits and demerits of the system are tied up with these arrangements. The most noted advantage of the public school system is that it facilitates the social integration of the blind children. Others include the provision of educational opportunity where no better one is found, and the greater variety of offerings than are available in a special residential school. Among its demerits are the tendency to ignore individual differences of the students, sometimes resulting in a blind student having to repeat classes when the child cannot cope with the work as much as the seeing children do; the tendency on the part of the regular teacher to expect too much or too little from the handicapped children; the fewness of the services that may be available to the multihandicapped blind ones, and the paucity of the equipment and braille or large type books that are available to the visually impaired children (Daramola, 1976).

In the residential school, on the other hand, the individual differences of the children are recognized, respected, and provided for; the whole spectrum of the curriculum is geared toward their needs; both the necessary equipment and books (in braille as well as in large print) are provided; and there are the services of well-qualified specialist teachers and other professionals. There are, however, the possibilities that the available potential courses will be fewer than in the public school, and that the scope for social integration will be limited.

Reading and Writing for Visually Impaired

There are two major areas in which the visually impaired must receive very special education and training. These include, first, reading and writing; and second, orientation and mobility. Formal education of the blind began with successful attempts to teach the blind through tactual senses. Some reading was accomplished, even though the tactual presentations were inconsistent and highly varied. They included embossed letters, woodcarvings, string glued and any other method that could allow the blind to "see" their hands (Gearheart, 1980).

In France in the nineteenth century, Lovis Braille, himself blind, developed an alphabet that blind persons could read and write. Braille actually based his alphabet on a tactual system that had been developed by a French officer, Charles Barbier, for writing messages that could be read at night. The "braille" method was offered as a replacement for raised line letters.

Braille may now be "typed" on mechanical braille writers or printed by computers. In addition, a slate and stylus system is used by the blind for note-taking (Gearheart, 1980; Hallahan and Kauffman, 1978).

Reading and writing for limited or low vision students is another matter and varies with the degree of visual limitation. Depending on visual efficiency and type of visual impairment, some partially seeing students may read normal print with the help of magnification; some can read large print; and some can read normal print by holding the text up to within one inch or two of the eye.

A second broad area of concern for the visually impaired is developing the ability to move safely, efficiently, and gracefully from place to place, which is generally referred to as orientation and mobility.

Orientation means the establishment of position in space and relative position to other objects in the environment. This is accomplished through the proper use of the remaining senses and is much more complex than most seeing persons initially perceive. It is an ongoing process and requires re-established knowledge of position after each new step is taken.

Mobility is the actual locomotion of an individual from one fixed position to another position in the environment. In combination, orientation and mobility should provide the visually impaired person with the ability to move about independently (Gearheart, 1980).

Academic Achievement

The literature shows very few studies to have been made of the academic achievement of visually impaired relative to sighted children. Many professionals agree that direct comparisons are questionable, primarily because the two groups must be tested under radically different conditions (Hallahan and Kauffman, 1978).

Despite the problems involved in measuring achievement in visually impaired, some gross generalizations can be made from the research that has been done. There is more than a little evidence to suggest that both partially sighted and blind children are behind their sighted peers when equated on mental age (Bateman, 1963; Bateman and Wetherell, 1967; Lowenfeld, 1945; Nolan and Ashcroft, 1969; Oseroff and Birch, 1971; Suppes, 1974). Another generally accepted conclusion is that the achievement of visually impaired children is not affected as greatly as is that of the hearing-impaired. Hearing is evidently more important for school learning than is seeing.

Instructional Adaptations

The majority of visually impaired children in local day schools are assigned to a regular grade--according to their age and level of academic achievement. They are given special education through the resource rooms, itinerant teachers, or teacher-consultants. The general goals or objectives of education are the same for visually impaired children as for sighted children, even though the procedures for attaing these goals are achieved by modification of instructional materials and special teaching procedures (Kirk and Gallagher, 1979).

Obviously, if visually impaired children were exposed only to the educational experiences and materials used with sighted children, they would not achieve their special educational goals. Special methods, materials, and equipment must be employed.

Lowenfeld (1973) has pointed out three principles to keep in mind in adapting procedures for the visually impaired. These principles are: concreteness, unifying experiences and learning by doing.

Specialized Materials and Equipment

There is little doubt that lack of sight can severely limit a person's experiences, since that educational experiences occurring in the typical classrooms are estimated to be 85 percent visual in nature (Telford and Sawrey, 1977). Nevertheless, most visually impaired children are found in regular classrooms. The education of the visually impaired in regular classrooms is made possible by the aid of special materials and equipment.

Special equipment and aids are required to facilitate instruction and learning for visually impaired children. These include movable and adjustable desks to catch the right angle of light, gray-green chalkboards that reflect more light, typewriters, dictaphones, record players, magnifying lenses, large type books, three dimensional maps, braille and other specially designed teaching-learning aids (Kirk and Gallagher, 1979).

Audio aids are basic elements in a blind child's quest for knowledge, such as talking books, tape recorders and other technological aids which include the optacon scans print, and computer automation. Others are compressed speech, Kurzweil reading machine, which converts printed materials into spoken English at normal rates.

The Visually Impaired in School Workshop

Programs such as pre-vocational/vocational education program involve activities in the workshop. Extra help is needed for the visually impaired individuals in such areas as equipment, operation, orientation, and mobility in the shop, material aids and devices for adaptation. Although most machine and tool operations, for instance, are within the capabilities of the visually handicapped student, certain operations that depend heavily on hand-eye co-ordination, such as free cutting on the bandsaw or jigsaw, must be modified or eliminated, depending on the characteristics of the student's particular visual handicap (Ruffino and Canterbury, 1978).

Sight is often thought to be a prerequisite for safe and efficient machine operation. Experience, however, has shown that a visually impaired student can become a safe machine operator with instruction in the proper techniques (Ruffino and Canterbury, 1978). This is possible through a series of adapted procedures referred to as the "four-step pattern for safe operation of power equipment by the visually handicapped." The procedures require the student to follow safe tactual paths along the machine surfaces. The four steps cover techniques for:

> 1. Approach and primary contact with the machine;
> 2. Observing the state of rest or motion of the machine;
> 3. Following safe paths from the primary points of contact to and from points of control and points of observation of the progress of the work; and
> 4. Observing the progress of the work being done. (Ruffino and Canterbury, 1978, p. 70)

Although in most cases the four-step process has proven to work well, there are operations that require individualization of the procedures and modification of the machine.

One of the major barriers confronting the visually impaired student is movement within the school-shop environment. By the time the blind student arrives at the school shop, he has more than likely been exposed to a variety of techniques and procedures regarding orientation and mobility. Parental and pre-school instruction, elementary school related instruction and a comprehensive course by a certified mobility instructor will have taught the visually impaired child a method of movement.

The environment of a school shop will, of course, be different from normal school classrooms experienced by the visually impaired student. Awaiting the student will be a variety of auditory stimuli--such auditory stimuli may include the high pitched whine of a saw or drill, the resounding impact of a hammer, or the subtle cutting sound of a plane. Odors such as fresh-cut wood, finishes, or oil from a machine cut are all part of the kaleidoscope of clues to the happenings within the room.

Furniture usually will not be placed in the straight rows or patterns of the academic classroom, but rather in angular or bay arrangements. To the visually handicapped student, this "disorder" can be a confusing nightmare.

Orientation and mobility techniques within the workshop are essential to the visually impaired as an independent individual capable of obtaining tools and materials and setting up a work station. Information concerning orientation/mobility techniques may be obtained from most associations for the blind, itinerant teachers of the blind, and special schools serving the blind (Ruffino and Canterbury, 1978).

Agencies Serving the Visually Impaired in Nigeria

1. Federal Nigeria Society for the Blind,
   P.M.B. 2225, Lagos, Nigeria;
2. Northern Nigeria Society for the Blind,
   Kaduna, Nigeria;
3. Open Education Scheme for the Blind,
   P.O. Box 3462,
   Mapo Hill, Ibadam, Nigeria;

4. Bida Blind Centre,
   c/o Social Welfare Office, Bida,
   Niger-State, Nigeria,
   Operates sheltered workshop for the blind; and
5. Nigeria National Advisory Council for the Blind,
   P.O. Box 2145, 15 Martin Street,
   Lagos, Nigeria
   Director, Phone 033-23594.

Identification and promotion of growth of the image of the blind within Nigerian community; provision of resettlement/rehabilitation allowances to the handicapped, employment opportunities for the blind and other disabled--the council has made it possible for the Federal Government to establish integrated secondary schools for the blind. It acts as an advisory body to the Federal Government in matters affecting the blind and welfare in Nigeria.

Other authorities responsible for the education of the blind in Nigeria include:

1. Federal Ministry of Education, Lagos;
2. Nineteen State Ministries of Education;
3. Federal and State Ministries of Health, Labour, Sport, Social Welfare, and Culture.

Summary

This last section of Chapter II deals with related literature. Its implication to the development of the proposed program is to help the researcher to identify the current trends in educational programs for the visually impaired. The section also presents background knowledge on visual impairment and the visually impaired individuals. The content will assist the researcher as well as other persons concerned in understanding the group (the visually impaired) that the proposed program will serve.

Chapter II was divided into three sections. The three sections included are: the Nigerian educational system; education for the exceptional children in Nigeria; and a discussion on curriculum design; and review of literature on visual impairment.

The first section consists of a discussion on the Nigerian educational system, the Nigerian economy and Nigerian manpower situation in general, and Kano State in particular. A brief description on Nigeria and its geographical location was presented.

The second section presented education for the exceptional children in general, and visually impaired in particular. Included also was a review of writings of authorities regarding curriculum design.

The third section consists of topics such as educational programs for the visually impaired, the visually impaired in school-workshop, incidence of visual impairment in West Africa, and courses of visual impairment.

CHAPTER III

ANALYSIS OF PRE-VOCATIONAL MATERIALS RECEIVED FROM UNITED STATES

Introduction

Chapter II presented a brief discussion of some aspects of Nigerian educational policies, Nigeria's philosophy of education, the present status of Nigerian economy and Nigerian manpower situation in general and Kano State in particular. Included in the content of Chapter II were: a brief discussion on curriculum design, education of the visually impaired in Nigeria, and a review of the writings of authorities who have written on topics of visual impairment and educational programs for the visually impaired.

Chapter III deals with review and analysis of pre-vocational/vocational education research materials received from the participants of this study. Pre-vocational/vocational program guides and other materials related to education for the visually impaired at the secondary school level were sought from officials in charge of pre-vocational/ vocational education programs in the United States of America. In order to obtain the materials, letters were sent to 30 individuals. This chapter will present the detailed analysis of the content of the program guides and course offerings received in the course of the study. The analysis will attempt to put the contents of the research materials in the perspective of elements or components that constitutes a curriculum. Those elements were previously identified in Chapter II as: a philosophical statement; aims, goals, and objectives; instructional content; learning experience and evaluation. It is not expected that the materials received would contain enough information on any of the elements; however, efforts will be made to identify:

1. The outline of courses of the program;
2. The outline of course contents or learning activities;
3. The aims, goals and objectives of the courses or program that are undertaken;
4. The method of instruction employed;
5. The levels at which the program is offered;
6. Supplementary programs attached to the main program such as the itinerant teacher program, resource room, and/or special programs;
7. The time framework within which it is feasible to conduct the program; and
8. Evaluation method used in the program or courses.

Categories of Responses

Individuals who were contacted in writing to provide research materials responded in various ways to the request made to them. Thirteen officials in the United States did not respond at all. This group represented 43.3 percent of the total population involved in the study. Seventeen officials, representing 56.7 percent, replied to the letters sent to them. The main point raised in the request to officials in charge of pre-vocational/vocational education programs in the United States was program guides or names of institution/contact persons who might be in a position to appropriately respond to the researcher. Two officials indicated that such programs do not exist in their respective states. These two states are Pennsylvania and Michigan. Three officials (10%) supplied to the researcher a written information indicating reference books and journals that might help in designing pre-vocational education programs for the visually impaired. Another two officials from the states of New Jersey and Illinois referred the researcher to the state supervisors in charge of vocational education for the visually impaired. These two persons that the researcher was referred to did not reply. One official indicated that his institution does not have such a program, but provides technical assistance to governments of developing countries in the areas of rehabilitation, education and equipment. The official identified in the state of New Mexico has moved from the address used. Eight of the officials supplied one or more of the following: curriculum guide, program of the study, course content, course offerings, handbook and brochures to the researcher. These program guides are mainly concerned with pre-vocational/vocational education for the visually impaired.

Detail Review of Individual Pre-Vocational/Vocational Education Programs

Program guides and other sources of information obtained show marked differences in program structure and method of instruction. A review of individual pre-vocational/vocational programs and curriculum guides will be given in the proceeding pages, beginning alphabetically with the ones obtained from the States of California, Illinois and Maryland.

California

Names and addresses of nine schools that offer pre-vocational/vocational education programs for the visually impaired at the secondary school level were identified by California State Director of Agencies serving the visually impaired. Of these nine schools, five school administrators responded to the researcher's request. One school administrator--Frances Blend School--suggested that the researcher should contact Perkins School for the Blind, Massachusetts. The detail review of materials obtained from individual schools in the State of California are as follows.

Longbeach Unified School District

Longbeach Unified School District offers a pre-vocational and vocational course. Vocational alternatives for visually impaired secondary school students include:

1. Academic subjects such as typing and industrial art

classes (i.e. auto, printing, woodshops) with the help of an aid;

2. Enrollment in special education pre-vocational classes;
3. Enrollment in occupational training courses; and
4. On-the-job work experience.

Visually impaired students have been involved in these various vocational alternatives through the years. Currently in Longbeach Unified School District, visually impaired students are enrolled in hospital housekeeping training,hotel/restaurant occupations and diesel mechanics.

The materials received from the Director of Curriculum Service, Longbeach Unified School District, are:

1. Overview of vocational education program for handicapped, explaining vocational orientation and occupational training for the handicapped secondary school students;
2. Special education vocational courses--pre-vocational course outline;
3. Course description and outline of commercial housekeeping, groundskeeping and hospital housekeeping; and
4. Custodial training program--building maintenance.

Vocational orientation and occupational training for the handicapped secondary school students at Longbeach Unified School District includes a four-year sequential vocational experience program upon entrance to the ninth grade special education classes.

The ninth grade special education classes stress communication, computation, quantitative skills, and pre-vocational orientation toward the world of work. The tenth grade students participate in an evaluation program at the Career Assessment Center, which includes:

1. Academic achievement;
2. Vocational competency; and
3. Vocational interest.

Upon completion of the above vocational evaluation, a conference is held for suggested occupational preparation and vocational training programs. The choice and combination of vocational training experiences are dependent upon the ability and skills of the individual.

During the eleventh and twelfth grades, students are able to participate in the following programs: animal care; appliance repair/servicing; auto body repair; banking and finance; bicycle repair; child care; cook/chef; diesel mechanics 1-4; fashion merchandising; hotel/restaurant occupation; legal transcriber; ornamental horticulture; PBX-training; waiter/waitress; or welding.

Special vocational training programs under the supervision of a vocationally credentialed teacher, stresses prevocational skills and good work habits: (a) building maintenance training; (b) commercial housekeeping training; (c) groundskeeping training; and (d) hospital housekeeping training. Outside programs include: (a) goodwill industries; and (b) hillside enterprises.

Included in the program is an exploratory work experience program which is individually scheduled with a local employer to provide on-the-job training.

Los Angeles Unified School District

Secondary school visually impaired students in Los Angeles School District have been mainstreamed into junior and senior high schools. The regular classroom teacher and the resource or itinerant visually impaired teachers work together on making any adaptations which are necessary in a particular class.

However, a brochure was received which describes the resource and itinerant programs; such programs include special schools, special class at a regular school, and itinerant program. These visually impaired programs are designed to place and serve each identified individual pupil in the least restrictive environment and to fulfill the maximum educational potential of each student.

The special school programs offered an intensive, individualized instruction in small classes. An optimum visual, auditory and tactual environment is provided with specialized educational equipment. Staff includes teachers specially credentialed to teach visually handicapped students, orientation and mobility specialists, music specialist, home economics teacher, speech specialist, psychologist, nurse and other professionals.

Special class at a regular school program is provided throughout Los Angeles Unified School District at all levels of education. Teachers of visually handicapped students are located at specific elementary, junior high and senior high schools to provide needed special instruction.

In this program, visually impaired pupils attend regular classes. They also attend a resource room for as much specialized assistance as is necessary to meet the needs of such pupils on a daily basis. Program planning is highly individualized and very flexible. Specialized equipment used in the resource room includes large print and braille books, dictionaries, encyclopedias, recorded materials, large print typewriters, braille writers, low vision aids, including illuminated magnifiers, closed circuit television systems and other aids.

In the itinerant program, visually impaired pupils attend regular classes at their local schools. In addition to their regular class instruction, students receive special supplemental instruction from an itinerant teacher who is credentialed to teach visually impaired pupils and serves several schools. The pupil in the itinerant program receives instructional sessions on a regular basis as indicated by individual needs. The itinerant teacher provides: supplemental academic instruction; counseling and guidance; and instructions in how to effectively use specialized educational aids and materials (Visually Handicapped Program Office, 1981).

Sacramento City Unified School District

Sacramento City Unified School District no longer offers pre-vocational education for the visually impaired, and copies of the previous pre-vocational education program were not available; nevertheless, an example of learning areas was received, and they were as follows: (a) mechanical skills--small engines, automobile familiarization, motorcycle repair, handbooks/machines, bicycle repair, electrical wiring/circuits; (b) office skills--typing, filing, mailroom, stockroom, general office procedure; and (c) consumer/independent living skills--home maintenance, appliance repair, cooking, safety, mobility, clothing management.

The office skills class is set up like a business enterprise. Everything the students do is done for the business.

The objectives of the pre-vocational program and the units involved are intended to provide students with information about careers in that area. Another purpose is to give the students a head start in vocational areas which will enable visually impaired students to compete with non-handicapped students in regular vocational education classes. An integral part of the program is work experience education program. Students in their last two years of high school are placed in businesses throughout Sacramento for the purpose of obtaining realistic, practical, supervised experiences in the world of work.

San Diego City School District

Printed materials were received from the supervisor, programs for handicapped. The materials describe programs for the visually impaired as well as a list of some of the specialized equipment utilized in helping the individual students.

The academic curriculum for most of the visually impaired students in the San Diego City School District is the same as for the regular students. This group of students receives services and instruction from itinerant teachers who hold credentials qualifying them to instruct visually impaired students. The frequency of contact by the itinerant teacher depends upon the needs of the students.

Daily living skills instruction is provided for visually handicapped students in two settings. During summer sessions the students are taught such skills in special day classes. These sessions last six or seven weeks. The San Diego City School District has started operating a learning center where visually impaired students who are mainstreamed can be brought together to work on skills which are essential to their particular needs. The learning center is in operation during the school year from September to June, and students selected to participate are brought to the center once a week.

Illinois

The official contacted in Illinois State responded to the researcher's request by referring the researcher to the superintendent, Illinois School for the Visually Impaired. The superintendent did not respond.

Maryland

Maryland School for the Blind was identified by the researcher as one of the outstanding schools that provide the visually impaired with pre-vocational/vocational education programs. Reference to this school appeared in the literature concerning education for the visually impaired (Chambers, 1974, 237-238). The materials received from Maryland School for the Blind (M.S.B.) consist of a pre-vocational/vocational sequence model, the Maryland School for the Blind Vocational Education Program (Wolfe Center), and a career development scope and sequence model.

The purpose of the pre-vocational/vocational educational program in M.S.B. is to contribute to a better standard of living for these students who successfully complete the program. The philosophy of Maryland vocational education as indicated in the program guide stated that:

> That M.S.B. vocational education program is concerned with recognizing the varied pre-vocational/vocational student needs, beginning in early elementary school and continuing through high school for the purpose of providing each student with a positive awareness of self and the world of work. At point of exit from M.S.B., the students will be equipped with the necessary skills, work habits/attitudes for an entry-level position in the world of work, post-secondary occupational training and/or other appropriate community placement. (Clayton, December 1980, p. 1)

The goal of the program is to provide each student with the opportunity to acquire the knowledge, skills, and attitudes which will prepare the individual students to function successfully in society as a productive person at a realistic level. The objectives of the program are stated in the program guide as:

> To provide a variety of pre-vocational/vocational experiences which will allow students to identify and assess their potential so as to be able to acquire a functional and/or saleable skill commensurate with their ability. (p. 1)

The M.S.B. philosophy of service indicated that the schools program should promote students' development in every dimension of their lives including intellectual abilities, physical skills, social and emotional functioning, health, vocational preparation, independent living skills, and recreational pursuits.

Maryland School for the Blind vocational education program at the high school level has three broad concerns related to vocational choice. These concerns are:

1. Continuing to aid the student in the development of self-concepts;
2. Expanding opportunities for students to explore and learn about the world of work; and
3. Clarifying the relationship between the academic world and the working world.

These program concerns are satisfied through activities with regular vocational classes in regular subject matter, through specially organized guidance on career sessions, workstudy and individual counseling sessions.

The program is divided into five specific learning areas. These five areas are as follows:

1. Task assignment project;
2. Pre-vocational areas: (a) woodworking; (b) printing; (c) ceramics; (d) survey of American industries; (e) basic electronics; (f) metal fabrication; (g) household mechanics; (h) plastics; and (i) work activity centre;
3. Vocational areas: (a) general and medical transcribing; (b) piano tuning technology; (c) switchboard/receptionist; (d) vending stand management; (e) industrial sewing; (f) auto mechanic (small engines);
4. Cluster programs: (a) child care aide; (b) custodial training; (c) dining room helper; (d) duplicating machine operator; (e) horticulture; (f) messenger; and (g) office clerk helper; and
5. Work experience.

Included in these five programs is a safety program. The primary purpose of the safety program is to provide for the maximum safety of all students participating in pre-vocational/vocational activities. The safety program is not a separate entity, but rather an ongoing integral part of all pre-vocational/vocational activities that occur in the programs.

The Maryland School for the Blind pre-vocational/vocational education program guide included a suggestion on how to evaluate such programs on the basis of:

> 1. Short Performance Test;
> 2. Teacher-student Assessment of Progress;
> 3. Completing tasks as to specifications and/or directions; and
> 4. Work habits. (Clayton, 1980, p. 7)

Michigan

The Michigan State director responded to the researcher's letter indicating that Michigan has no institutions that offer vocational training specifically for visually impaired persons. The local school district provides educational programs and services for the handicapped pupils which are as near to the regular education program as is possible. This means that handicapped children and youth are to be educated in the same classrooms and facilities as non-handicapped children to the maximum extent possible.

To assist those students to enter and succeed in vocational programs, the Michigan Department of Education provides support services, such as tutors, interpreters, notebooks, reader services, special tools and equipment, and learning station modification.

New Jersey

The Director of the State of New Jersey indicated in response to the researcher's request that the commission for the blind in New Jersey works closely with local boards of education to provide appropriate educational programs for the visually impaired student.

Some visually impaired students are mainstreamed in the regular education programs. Many more severely visually impaired students in New Jersey are registered with the commission for the blind and receive services through that agency; particularly those services that center around vocational education and vocational rehabilitation. To obtain such programs, the state Director referred the researcher's letter to the supervisor, secondary programs. The supervisor did not respond to the request.

Ohio State

The Ohio State vocational/special education liaison supervisor supplied to the researcher a brochure describing the overview of programs available to the visually impaired individuals, and referred the researcher's letter to the co-ordinator of career and vocational education program for the visually impaired.

In response to the referred letter, a handbook was received describing the courses offered in Ohio career education department. Detail review of the courses will be described in the proceeding pages.

The Ohio State School for the Blind (O.S.S.B.) comes under the administration of career and vocational education department. A course offering handbook was sent by the principal of the school for the session of 1980-81.

The synopsis and objectives of the career education department courses at the Ohio State School for the Blind are intended to be an integral part of the general education of all students. Courses are designed and organized for the most part to accommodate students of all ability levels, making it possible for activities to be planned in line with individual interest and aptitudes and for students to progress at a rate of speed commensurate with the abilities.

The aims of the department are to:

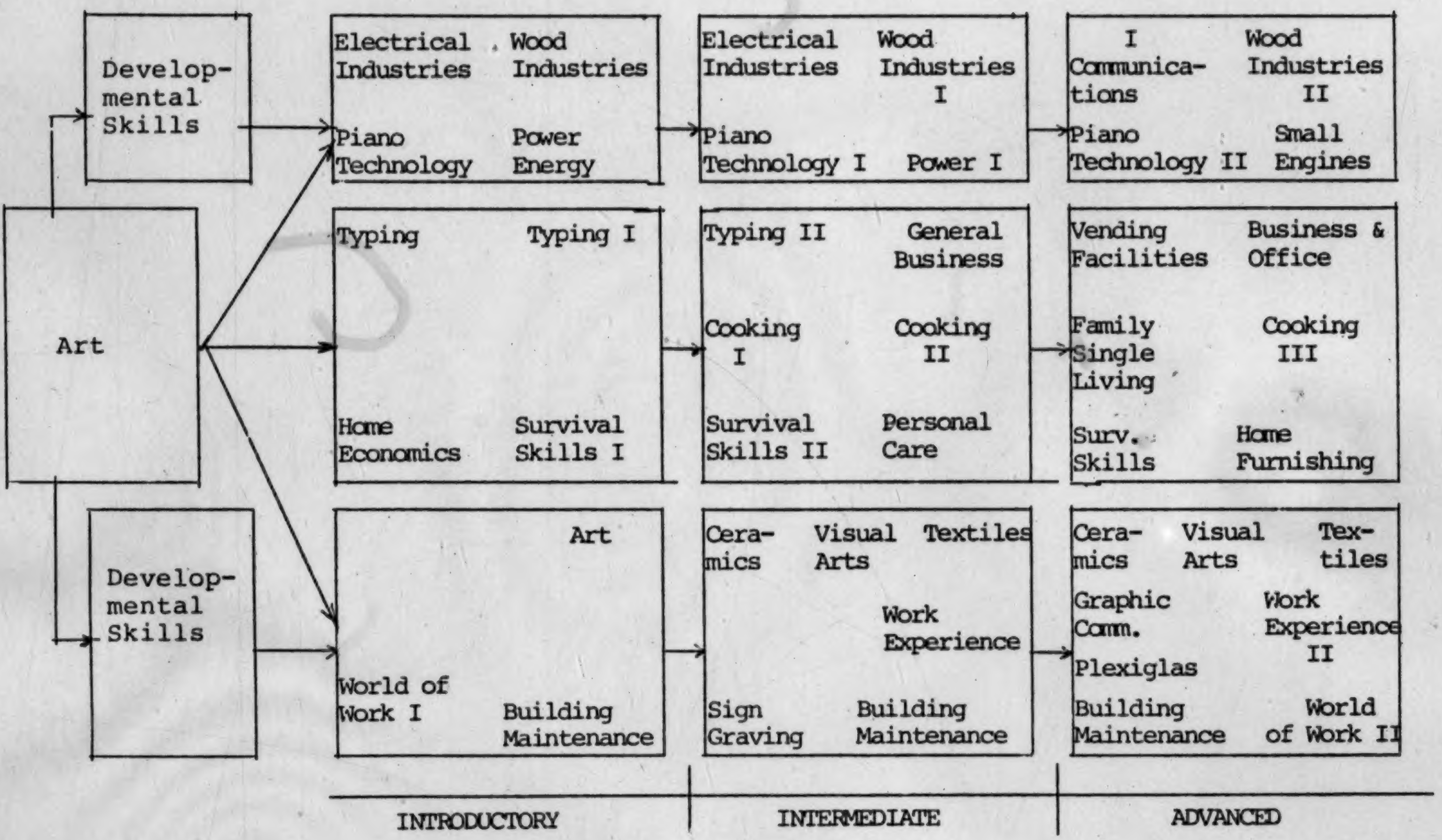
1. Provide the student with experience and information dealing with the world of work and occupational opportunities in business and/or industry;
2. Assist student discovery and development of personal aptitudes, interest, creative technical problem-solving abilities, self-reliance, sound judgement, resourcefulness and adaptability;
3. Assist student development of proper attitudes toward health, safety, and co-operative relationships with other persons;
4. Provide opportunity to identify a vocational and prevocational interest;
5. Provide visually handicapped students an opportunity to learn through non-visual senses; and
6. Provide the ability to adapt and modify equipment commensurate with their specific handicap (Course Offerings Handbook, pp. 2-3).

The instructional content of the program is divided into three levels--introductory, intermediate and advanced. The goals and courses of the program are meshed together to improve the individual skills of the various segments. Figure 5 shows a flow chart diagram and course progression.

The courses offered are classified into ten

Figure 5

OHIO STATE SCHOOL FOR THE BLIND
CAREER EDUCATION CURRICULUM - FLOW OF COURSES


Art
Developmental Skills
Developmental Skills
Electrical Industries
Wood Industries
Piano Technology
Power Energy
Typing
Typing I
Home Economics
Survival Skills I
Art
World of Work I
Building Maintenance
Electrical Industries
Wood Industries I
Piano Technology I
Power I
Typing II
General Business
Cooking I
Cooking II
Survival Skills II
Personal Care
Ceramics
Visual Arts
Textiles
Work Experience
Sign Graving
Building Maintenance
I Communications
Wood Industries II
Piano Technology II
Small Engines
Vending Facilities
Business & Office
Family Single Living
Cooking III
Surv. Skills
Home Furnishing
Ceramics
Visual Arts
Textiles
Graphic Comm.
Work Experience II
Plexiglas
Building Maintenance
World of Work II
INTRODUCTORY
INTERMEDIATE
ADVANCED

discipline areas and each discipline contains a number of courses. The breakdown of the courses, course title, number of credits per course, grades, course duration, prerequisites and grading scheme will be given as well as some examples of course descriptions. Starting alphabetically, the courses included in the program are as follows.

1. Art

Grade	Course Title	Duration	Credit
7,8	Developmental Skills	36 weeks	none
7,8	Introduction to Art	18 weeks	none
9,10,11,12	Ceramics	36 weeks	½
9,10,11,12	Textiles	36 weeks	½
9,10,11,12	Visual Arts	18 weeks	¼
11,12	Individual Studies	Arr.	Arr.

Developmental Skills Grades 7,8

36 weeks	Prerequisite: Instructor Perm
no credit	Graded: Satis./unsatis.

Developmental skills is a study of the basic skills essential for the exploratory introductory career education classes. This course provided each student with an opportunity to practice basic skills essential to success in the introductory level courses. The primary focus of the course is to introduce students to basic materials, tools, concepts, and processes used in pre-vocational and recreational areas at O.S.S.B. Opportunities will be available for students to make products in art and woodworking.

Teaching methods employed in this course are demonstrations and individual student help. Students will be evaluated from complete in-class assignments, tests and homework assignments.

2. Building Maintenance

Grade	Course Title	Duration	Credit
7,8	Intro. to Building Maintenance	18 weeks	none
9,10,11,12	Building Maintenance I	36 weeks	½
11,12	Building Maintenance II	36 weeks	½
11,12	Individual Studies	Arr.	Arr.

3. Business and Office Education

Grade	Course Title	Duration	Credit
7,8	Introduction to Typing	18 weeks	none
9,10,11,12	Typing I	36 weeks	½
10,11,12	Typing II	36 weeks	½
9,10,11,12	General Business	18 weeks	½
9,10,11,12	Vending Facilities	36 weeks	3/4
11,12	Business and Office Education	Arr.	Arr.
11,12	Individual Studies		

General Business

18 weeks
½ credits

Grades: 9,10,11,12
Prerequisite: General Math
Instructor Permission
Grades: Conventional

A survey course of General Business--included are discussion of economic systems; business and the consumer; exchange, money and banking; production and distribution of goods; insurance, credit and practical money management.

Teaching methods employed include lectures, discussions, worksheets and individual student help. Students are evaluated on in-class assignments, tests, special projects, homework assignments, student participation, work habits, attitudes and attendance. Semester and final examinations may be given.

4. Electric Industries

Grade	Course Title	Duration	Credit
7,8	Intro. to Electric Industries	18 weeks	none
9,10	Electrical Industries I	36 weeks	½
11,12	Communication I	36 weeks	½
11,12	Individual Studies	Arr.	Arr.

Communications II - Individual Studies   Grades: 11,12

Arranged hours	Prerequisite: Instructor Per.
Arranged credit	Grade: Conventional

Communications II is designed for the student who wishes to specialize in morse code and ham radio. Content areas covered include an in-depth study and practice of morse code, ham radio, communications, safety and testing equipment.

5. Graphic Communication

Grade	Course Title	Duration	Credit
10,11,12	Signgraving I	18 weeks	¼
10,11,12	Signgraving II	18 weeks	¼
9,10,11,12	Plexiglass	18 weeks	¼
11,12	Graphic Communications	36 weeks	
11,12	Individual Studies		Arr.

6. Home Economics

Grade	Course Title	Duration	Credit
7,8	Intro. to Home Economics	18 weeks	none
7,8	Intro. to Survival Skills	18 weeks	none
9,10	Survival Skills I	36 weeks	½
11,12	Survival Skills II	36 weeks	½
9,10	Cooking I	18 weeks	¼
9,10,11,12	Cooking II	18 weeks	¼
11,12	Cooking III	18 weeks	¼
11,12	Family and Single Living	18 weeks	¼
11,12	Home Furnishing	18 weeks	¼
11,12	Job Preparation	36 weeks	½
9,10,11,12	Personal Care	18 weeks	¼
11,12	Student Apartment	9 weeks	¼
11,12	Individual Studies	Arr.	Arr.

7. Piano Technology

Grade	Course Title	Duration	Credit
7,8	Introduction to Piano Tech.	18 weeks	none
9,10	Piano Technology	36 weeks	½
9,10,11,12	Piano Technology	36 weeks	½
11,12	Piano Technology	36 weeks	½
11,12	Individual Studies	Arr.	Arr.

8. Small Engine Technology

Grade	Course Title	Duration	Credit
7,8	Intro. to Power and Engine	18 weeks	none
9,10	Power I	36 weeks	½
9,10,11,12	Small Engine I	36 weeks	½
11,12	Small Engine II	36 weeks	½
11,12	Individual Studies	Arr.	Arr.

9. Wood Industries

Grade	Course Title	Duration	Credit
7,8	Intro. to Wood Industries	18 weeks	none
9,10	Wood Industries I	36 weeks	½
11,12	Wood Industries II	36 weeks	½
11,12	Individual Studies	Arr.	Arr.

10. Work Experience

Grade	Course Title	Duration	Credit
7,8	World of Work I	18 weeks	none
11,12	World of Work II	18 weeks	¼
7,8,9,10, 11,12	On-Campus Work Experience	Arr.	Arr.
10,11,12	Off-Campus Work Study	Arr.	Arr.
11,12	Person-to-Person Individual Studies	Arr.	Arr.

Students enter the career education department at the 7th grade level where placement is determined by an assessment of manual skills and knowledge of basic manipulative tasks. If it is determined that additonal learning is needed, the student is directed through the development skill course.

The intermediate and advanced level courses provide electives, the student may wish to take after identifying his area of interest. Upon completion of the advanced level course, the student may choose to further his study in a particular area through independent studies. The independent study course content, credit, and class time are determined by the class teacher and student.

Other academic courses are also offered, which include English language, mathematics, and braille. Special services are also offered, such as counseling, orientation and mobility, remediation, speech and hearing, and students could take vocational courses outside the O.S.S.B. program (in other high schools).

Pennyslvania

The Deaf-Blind co-ordinator responded to the researcher's request by indicating that Pennsylvania did not develop any vocational programs either in the public or approved private school sector; there are vocational schools throughout the state which have effectively trained individual visually handicapped students in specific fields such as computer programming, x-ray development, massage, or piano tuning. Most of these programs were not designed specifically for visually handicapped, but were adjusted to accommodate blindness or low vision of the particular student who enrolled in the program.

Texas

No response to the researcher's letter, sent to Texas State director responsible for pre-vocational/vocational education for the visually impaired, was received. However, a pre-vocational curriculum guide was received from the administrator of the Texas School for the Blind. This school was identified in the Directory of Agencies Serving the Visually Impaired.

A copy of the pre-vocational curriculum and a vocational program levels of functioning was sent to the researcher from the Texas School for the Blind. The curriculum received is divided into two parts; the first part consists of courses and units on adaptive education at the pre-vocational level. The materials are in a form of lesson plans, stating the instructional objectives, content, teaching strategies, activities and materials. An example of such a lesson plan is given below.

Course and Unit: Adaptive Education - pre-voc. Date: Sept. 4, 1981.

Instructional Objectives: The student will become familiar with the course outline and content.

Contents:
1. Fine motor
2. Gross motor
3. Work samples - pre-vocational training
4. Vocational competency scales
5. Level of functioning

Teaching Stragegies: Oral instruction
Group interaction

Activities: Visual Aids
Oral discussion
Testing

Materials: Test kit
Hand-outs
Various work samples.

The second part of the materials consists of a pre-vocational program modified for visually impaired. The program is divided into two parts--pre-vocational skills and work performance skills.

Each skill to be learned in the program is broken down to its most basic operation. The steps required to learn a skill or task become the learning specifics. An evaluation form is included in the curriculum that allows each step in the learning activity to be evaluated separately. The instructional content is divided into topics to be taught in the program. The pre-vocational skills are divided into eighty topics. Each topic is broken down into objective, procedure and level of functioning. An example of the breakdown of such topics is given below (Hurst, 1981).

Nuts and Bolts

Objective: Given ten ¼" nuts and ten ¼" bolts mixed together, the student will put one nut on each bolt.

Procedure: The student will turn one nut on each bolt.

Level of Functioning: All ten units must be placed on the bolts, one nut to a bolt, each within two minutes, on three of four occasions. The nuts must stay on the bolts when picked up.

Tools II

Objectives: Given a wood rasp, coping saw, miter box, hack saw, carpenter's hand saw, wood plane, claw hammer, screw-driver, "C" clamp, open end wrench, brace and bit, utility knife, pliers, tin snips, staple gun, paint brush, carpenter's rule, sandpaper, level, square, and ratchet and socket placed in a random order, the student will name the tool pointed to by the instructor.

Procedure: The student will name the tool pointed to by the instructor.

Level of Functioning: All 21 tools must be named correctly, each within 30 seconds, on three of our occasions.

The second part of the pre-vocational program consists of work performance skills. The following are some of the examples of the work performance skills broken down into objectives, procedures and level of functioning.

Product Stage

Objectives: Given a specific procedure for storing finished work products in the proper location and a specific amount of time allowed for storing at the end of the work shift, the student will store the products appropriately.

Procedure: The student will store the finished products.

Level of Functioning: Behavior on 20 consecutive work days. The finished work product must be stored properly within the time allowed.

Assembly

Objectives: Given a work assignment of assembling specific objects, the student will complete all of the assemblies.

Procedure: The student will perform the assembly work assignment.

Level of Functioning:	Behavior must occur until there is a new instruction or the job is completed. The specific job assignment or task must be performed correctly, and the rate of work must be acceptable, as defined by the supervisor.

Results of the Study

Figure 6.0 shows the curriculum components that were found in the curriculum materials and are reviewed and analyzed in this chapter.

Philosophical Statement

It was established from the literature review on curriculum that the first step in curriculum development is to develop a philosophical statement for the curriculum. Figure 6.0 indicated that only two out of the seven curriculum materials received contain a philosophical statement. One example may suffice to indicate the type of philosophical statement contained in the curriculum materials reviewed. Such an example (Maryland School for the Blind) was previously discussed on page 125.

Aims, Goals and Objectives

Date from Figure 6.0 indicated that six out of the seven curriculum materials received have either aim, goal or objective statements.

Some of the statements of aims and goals are global, such as the goal statement contained in the curriculum

Figure 6.0

Curriculum Components Found in Curriculum Materials of Participating Schools

School Name	State	Philosophical Statement	Aims, Goals & Objectives	Content	Learning Experience	Evaluation	Supplementary Programs	Work Experience
Longbeach U.S.D.	California	X	X	X	X	X	X	X
Los Angeles U.S.D.	California		X				X	
Sacramento City U.S.D.	California		X	X	X			X
San Diego City U.S.D.	California					X	X	
Maryland School for the Blind	Maryland	X	X	X	X	X	X	X
Ohio School for the Blind	Ohio		X	X	X	X	X	X
Texas School for the Blind	Texas		X	X	X	X		

2

Notes: [1] U.S.D. means Unified School District.

X indicates the presence of that particular curriculum component in the curriculum materials of the participating schools.

Blank indicates the absence of that particular curriculum component in the curriculum materials of the participating schools.

materials received from Ohio State School for the Blind (O.S.S.B.). The aims of O.S.S.B. were stated on page 130.

The goal statement stated in the Maryland School for the Blind program guide reads:

> The goal of the program is to provide each student with the opportunity to acquire the knowledge, skills, and attitudes which will prepare the individual students to function successfully in society as a productive person at a realistic level. (The pre-vocational/vocational education sequence Model A.1)

Where objectives were provided in the curriculum materials that were reviewed, their generality or specificity differ considerably. While in some curriculum materials received the statements of objective are more like statements of aims and goals--for example, to provide students with a saleable skill, and to broaden each student's knowledge of the work environment (Texas School for the Blind, Curriculum Guide), other statements of general objectives are similar to performance objectives--such as, given ten ¼" nuts and ten ¼" bolts mixed together, the student will put one nut on each bolt. Various examples of aims, goals and objectives could be found in the section on detail review of individual pre-vocational/vocational education programs (pages 118-142).

Content

Content is defined in the educational literature as information, ideas, concepts, generalizations, principles and the like, that the student is expected to learn after being exposed to it in a learning environment. In order to effectively and efficiently achieve the educational aims, goals and objectives of a curriculum, the selection and organization of content is most important if learning is to progress from the simple to the complex.

Data in Figure 6.0 show that five out of the seven curriculum materials reviewed contains content. The instructional content analyzed differ in organization but the intent and the learning activities are similar. Examples of the type of content contained in the curriculum materials received would illustrate the similarities of courses among the materials that were reviewed. Such examples could be cited on pages 118 to 142 of this study.

The researcher identified the following areas of instruction as areas that are included in pre-vocational educational programs for the visually impaired at the secondary school level. Such areas are: wood technology, electricity/electronics, ceramics, plastics, graphics/printing, home economics, survival skills, daily living skills, business and office education, and work experience.

Learning Experience

Taba (1962, p. 265) defined learning experiences as the mental operations that students employed in learning content of the curriculum.

The result of the analysis of curriculum materials indicated that 71 percent of the seven curriculum materials that were analyzed did include learning experiences that could provide for interaction between the student and the curriculum content.

The Ohio State School for the Blind (O.S.S.B.) program contains as part of learning experiences such vicarious means of learning as guest speakers, management and operating of the school canteen, field trips, films, etc. (Career Education Department, Course Offering Handbook, 1980-81).

The curriculum materials received from Sacramento City Unified School District has office skills as one of the courses offered under the pre-vocational education program. The office skills class is set up like a business enterprise. Everything the students do is done for the business (Brochure, 1980-81).

Evaluation

To find out whether or not the aims, goals and objectives of a curriculum are achieved, whether or not the content is effectively transmitted through learning experiences and instruction, as well as to find out the weaknesses and strengths of both the curriculum and the instruction, evaluation is a requisite.

Data in Figure 6.0 indicated that five out of the seven curriculum materials reviewed and analyzed contained some form of evaluation.

The curriculum materials for the pre-vocational/vocational education program at Ohio State School for the Blind includes, at the end of each course outline, a guideline for evaluation that the teacher might use. For example, ceramics (course), graded scheme-conventional-grades will be determined by examination of the product in relation to the requirements of the assignment and personal involvement of each student. Power I: (course) graded scheme-conventional-student will be evaluated from completed experiments, in-class assignments, homework assignments, and tests.

The Maryland School for the Blind pre-vocational/vocational program guide included a suggestion on how to evaluate such programs on the basis of: Short Performance Test; Teacher-student Assessment of Progress; Completing tasks as to specifications and/or directions; and work habits (p. 7).

Other Components

Other integral parts of the pre-vocational/vocational program are the safety program and the work experience program. Such programs appeared in four of the programs analyzed in this chapter. Another program that appeared in five of the program guides is the inclusion of the supplementary programs. Such supplementary programs include: resource room; itinerant-teacher; and teacher-consultant programs. The method employed in providing the visually impaired with the supplementary program differs from school to school. Such programs in some of the schools are offered during the summer session, while in others the program is offered during the school session (September to June) as part of the courses of the main program.

CHAPTER IV

OTHER CONSIDERATIONS RELATED TO THE DEVELOPMENT OF A PRE-VOCATIONAL PROGRAM FOR THE VISUALLY IMPAIRED

Introduction

Chapter III presented a detailed review and analysis of pre-vocational/vocational education research materials received from the officials responsible for vocational education for the visually impaired at the secondary school level. Included in the content of Chapter III are: categories of responses, research findings; and detailed analysis of the content of the program guides, course offerings and other research materials received in the course of the study. Since these materials are going to be used for designing a pre-vocational education program for Kano State Secondary Visually Impaired students, it might be helpful to review pre-vocational education programs existing in Kano State secondary schools at the time of this study.

Chapter IV consists of three sections. The first section deals with a description of Kano State pre-vocational technical programs. Also included are two examples of such programs, the pre-vocational education technical education provided at Kano State comprehensive schools, and the pre-vocational technical education provided at technical and vocational training centres. The second section will present criteria for developing industrial education programs. The third and last section deals with theoretical and practical considerations that should be considered in providing vocational education for the visually impaired.

Existing Technical Pre-Vocational Education Programs in Kano State Secondary Schools

Kano State has three systems of providing technical/ vocational education. The most common among the three is the program provided in the comprehensive secondary schools. Another school which provides technical/vocational education is called Technical and Vocational Training Centre, usually referred to as junior secondary school. Such schools offer a three year pre-vocational program to those students who completed primary education, and vocational improvement courses to part-time workers. The third school is referred to as Government Technical Training School. This school is responsible for training students who successfully completed a pre-vocational program at the junior high school in vocational and industrial education. Courses offered in such schools include: building, carpentry, electrical, filter/ machinist, motor mechanic, radio and television, air-condition and refridgeration, plumbing/welding. In addition, general education courses are part of the program, such as technical drawing, physics, mathematics, language, art and

Religion.

With some modification to the curriculum, tools, materials, equipment and facilities, the visually impaired could be trained in any of the three systems of providing technical/vocational education. There are twelve such schools at the time of this study in Kano State. An example of two pre-vocational technical education programs will be given.

The Pre-vocational Technical Program in Kano State Comprehensive Secondary Schools

Program Objectives

The general objectives of a technical pre-vocational program in Kano State, Nigeria, complements the aims and objectives of the secondary school. These aims and objectives of the secondary school are discussed in Chapter II as well as the aims and objectives of technical education.

Specifically, the technical pre-vocational program is conceived as a part of the general education provided in the junior secondary school. The technical pre-vocational program aims to prepare its candidates for further education to institutions such as vocational senior secondary schools, colleges of technologies, polytechniques and universities of technologies.

Program Structure

Presently, secondary education in Nigeria in general and Kano State in particular is in the process of changing from a five year program to six years. This is the last phase of implementing the new National Policy on Education, which is scheduled to be fully implemented by June 1982. The first two years of the five years secondary education program are considered as junior secondary and the last three years of the program are considered senior secondary. While attending the junior secondary, all students explore all the courses offered in that school. At the completion of the junior secondary, students are guided and counselled for the major courses of study they would enrol in towards a career during the three years, according to their abilities and interests.

The technical pre-vocational courses offered in the technical wing of every secondary school are metalwork, woodworking, and technical drawing. The courses are organized in unit shops. The following is the breakdown for each course at each level of study.

Junior Secondary (Forms 1 and 2)

Metalworking

1. General shop safety and first aid;
2. Basic hand and bench tools;
3. Bench work;
4. Sheetmetal;
5. Metals;
6. Measurements.

Woodworking

1. General shop safety and first aid;
2. Basic hand and bench tools;
3. Basic woodworking joints;
4. Woods;
5. Measurements.

Technical Drawing

1. Drawing instruments;
2. Sketching;
3. Geometrical constructions;
4. Projections.

Senior Secondary (Forms 3, 4 and 5)

Metalwork

1. Benchwork;
2. Measurements;
3. Machines--shaping, lathe, grinding;
4. Sheetmetal;
5. Forge/welding;
6. Metals;
7. Design.

Woodworking

1. Wood joints;
2. Woods;
3. Measurements;
4. Machines--bandsaw, jigsaw, lathe;
5. Laminates;
6. Basic construction design.

Technical Drawing

1. Sketching;
2. Geometrical construction;
3. Projections;
4. Design.

At the junior secondary level, all students spend an equal amount of time in each field of study. At the senior secondary grades, a student chooses either metalworking or woodworking. Technical drawing is, however, common to both areas and is intended to reinforce the design construction or blueprint reading aspects required in either metalwork or woodworking. A student taking either metalworking or woodworking must take technical drawing.

Though technical drawing is common to both specific fields of study, the contents of design and geometrical construction are different and related to either metalworking/mechanical drawing or woodworking/construction building drawing. Because these courses are regarded as applied science, physics and mathematics are made compulsory for any student in the technical pre-vocational program.

The Pre-vocational Technical Program in Kano State Technical and Vocational Centres

Program Objectives

Technical education is defined in the National Policy on Education as "that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge." Technical and Vocational Training Centre (T.V.T.C.) was given that name because it explains the aims and objectives of the institution. The term "technical" represents a three-year pre-vocational program made available to those who complete primary education and the term "vocational" represents a part-time program offered to artisans in the evenings as vocational improvement courses.

The full-time three-year pre-vocational education program is conceived as a part of the general education provided in the junior secondary schools. Other aims of T.V.T.C. is to develop in a young student the ability to make balanced judgements and decisions in different situations and it also attempts to develop in the students a social awareness and sense of community through the varied activities offered.

The main purpose of Technical and Vocational Centre is to help students discover and develop their aptitudes, abilties and interests.

Program Structure

The pre-vocational technical program offered at the technical and vocational training centre is three years in duration. The first two years students are guided through a series of exploratory experiences in a variety of technical education areas. Included in the first two years are general education courses such as language arts, science, mathematics, and social studies.

Technical courses offered are: motor vehicle, mechanic trade, block laying and concreting, carpentry and joinery, general metalwork, welding arc/gas, and electrical installation. The content of courses include a section on drawing related to the subjects, safe practices in the use and care of materials, tools, and equipment. The ability to select, purchase, use, maintain and service industrial products is stressed. The program assists in developing a degree of proficiency in a variety of basic mechanic skills. The following are the breakdown samples of the courses offered in T.V.T.C.

Form 1 (Grade 7)

Subject - Electrical Installation

Theory Syllabus

1. Tools;
2. First aid;
3. Basic electrical theory;
4. Circuits;
5. Cables;
6. Protection;
7. Testing;
8. Voltage at consumers terminals
9. Batteries;
10. Instruments;
11. Workshop sketching.

Practical Syllabus

1. Operation involving hand tools, bench work, filling, drilling, tapping, threading and use of rule and simple marking out tools;
2. Safety and care of tools;
3. Electrical installation;
4. Electric cable joints;
5. Testing.

Subject - Electrical Installation (cont'd)

Form II (Grade 8)

Theory Syllabus

1. Electric theory;
2. Supply system;
3. Transformas;
4. Planning of final sub circuit and thread forms;
5. Wiring system;
6. Earthing;
7. Motors;
8. Instrument;
9. Battery.

Practical Syllabus

1. Exercise involving micrometer and gauges;
2. Different types of thread;
3. Electrical installation;
4. Final sub curcuit;
5. Wiring system;
6. Overhauling and repairs;
7. Earthing;
8. Instrument;
9. Battery;
10. Protection;
11. Special circuit;
12. Testing and inspection.

Form III (Grade 9)

Theory Syllabus

1. A.C. power;
2. Electrical installation;
3. Motor and generators;
4. Instrument;
5. Tariffs;
6. Sketching.

Practical Syllabus

1. Micrometer;
2. Installation;
3. Repair and overhauling;
4. Testing.

Subject - Carpentry and Joinery

Form I (Grade 7)

Theory Syllabus

1. Timber;
2. Materials;
3. Conservation of timber;
4. Hand tools;
5. Simple wood joints.

Practical Syllabus

1. Handtools--identification and uses;
2. Preparation of a stock/ timber;
3. Construction of wood joints;
4. Finishing and polishing;
5. Preparation of working drawings;
6. Use of metal fasteners;
7. Preparation and use of glues;
8. Construction of doors and windows.

Subject - Carpentry and Joinery (cont'd)

Form II (Grade 8)

Theory Syllabus

1. Seasoning methods;
2. Defects;
3. Glues and gluing;
4. Tools (more advanced);
5. Advanced joints;
6. Machine tools;
7. Prefabricated materials and uses;
8. Windows, doors and ironmangony;
9. Woodworking machines.

Practical Syllabus

1. Making simple projects involving wood joints;
2. Setting materials for job from a prepared drawing;
3. Preparation and use of glues;
4. Construction of doors, windows;
5. Use of metal fasteners;
6. Meintenance of tools;
7. Preparation and construction of special wood joints;
8. Identification and use of wood materials.

Form III (Grade 9)

Theory Syllabus

1. Machine tools;
2. Special and portable power machines;
3. Materials;
4. Construction methods;
5. Construction application;
6. Roofs, partition and floors;
7. Staircases construction;
8. Outline of cost analysis;
9. Woodworking machinery.

Practical Syllabus

1. Identification, selection and use of ironmongeries;
2. Maintenance, saws and planes;
3. Use of materials (flywood, etc.);
4. Application--wood joints;
5. Construction (tables, stools);
6. Complicated wood joints;
7. Organization and manufacturing.

The instructional content also includes reading of drawings, sketching and opportunity should be taken to relate a carpenter's work to other building trades and to building construction. For all grades, the teaching of theory must be closely related to practical instruction.

In the third and final year of the program, students are to choose their area of specialization according to their ability and interest under the supervision of a vocational guidance counseller. The last term of the third year (a period of 13 weeks) is devoted for training the final year students in "real" vocational courses as opposed to pre-vocational.

At successful completion of the three-year pre-vocational technical program, T.V.T.C. awarded to its graduate a school leaving certification (equivalent to grade nine junior high). Students could seat both for Government Trade Test III and for Government Technical Training School entrance examination, and subsequently, if qualified, will gain admission and pursue a three-year full vocational education program. Other programs that are available to T.V.T.C. graduates are: the senior secondary school programs; Grade II teacher education program; and/or the apprenticeship program.

Criteria of Development of Innovative Industrial Education Programs

In reviewing the literature to identify the criteria for developing a suitable program for Kano State, it was found useful to employ items developed by Leslie H. Cochran in his book, Innovative Programs in Industrial Education, in 1970. Only statements found relevant to current concepts in pre-vocational education, and in harmony with the programs for visually impaired that were reviewed and analysed in Chapter III were considered and adapted. Those found contradictory were therefore rejected. The statements below served as the criteria for developing the proposed program.

Statements Pertaining to Objectives

1. The program should be based on selected experiences that would provide for an understanding and appreciation of industry and its workers.
2. The program should provide for both male and female students.
3. The program should provide occupational guidance by helping students assess their occupational potential, interests and capabilities.
4. A student should be allowed to choose an area of concentration according to his/her interests and abilities.
5. The program should be directed toward providing exploratory experiences in selected industrial type activities.
6. The development of desirable work and safe habits should be integrated into the courses of study.
7. The program should be designed to provide the student with basic technical skills and occupational guidance information on a pre-vocational basis.

Statements Pertaining to Content

8. Content should be organized so that the major emphasis is placed on manipulative type activities (operational rather than informational).

9. The content in industrial education courses should closely correlate with subject matter taught in other departments in the areas of science, mathematics and English.

10. The content should be pre-determined by the teacher along with problems selected that relate to the needs of students and the community.

11. The program provides for instruction in the use of common hand and machine tools used in industry.

12. The program focuses on the study and use of industrial materials and processes.

13. Industry is studied by concentrating on the production of goods and the serving of products.

14. The program is based on a wide variety of selected experiences that sample several industries.

15. The dominant technologies, such as mechanical, chemical and electrical, are the basic source for content.

16. Content is classified under such instructional areas as woodworking, metalworking and drafting.

17. A study of industry is made by concentrating on the construction and manufacturing industries (pp. 64-65).

These statements were adapted because the literature on education for the visually impaired, the program guides, and other research materials reviewed in this study indicated that pre-vocational/vocational education programs for the visually impaired should be as near as possible to the regular school programs; as such, criteria for developing regular industrial education programs should serve as the criteria for developing such programs for the visually imapired with modification. These criteria will assist the researcher in developing the proposed program in regards to what to include in objectives and content of industrial education curriculum.

Educating the Visually Impaired in Pre-Vocational Education: Some Theoretical and Practical Considerations

This section will discuss some theoretical and practical considerations in educating the visually impaired in the area of pre-vocational/vocational education. The literature is rich with examples of how visually impaired persons can acquire complex skills and perform them at acceptable rates. The following conclusions have been drawn from project and research reports which have investigated vocational training with visually impaired persons (Mclaughlin, 1979, pp. 2-10).

1. The difficulty of the task should not impede the selection of a job for a trainee. Although, as a general rule, it may take longer to train a lower functioning individual with high rate interfering behavior, there appears to be very few manual assembly jobs which a physically able visually impaired person cannot do.

2. Detailed breakdown of task analysis and systematic chaining of components is critical, especially with low functioning visually impaired persons.
3. Size discriminations are easier through matching a very large item with the standard size item. Reinforcement of correct responses will then facilitate a reduced number of errors. Fading the size of the large item until reaching the target discrimination size must be done gradually.
4. Coding items will help visually impaired trainees orient to the salient or most critical points of a task. For example, one step of a ball point pen assembly task is putting the spring over the top of the metal insert. Colouring the top of this insert will help reduce repeated errors.
5. Massed practice (many trials) may increase the rate that a skill is learned; it may also increase the production rate of workers consistently off-task.
6. Positive reinforcement, in the form of verbal praise, trainer proximity, graphs, token, pennies, edibles, or adjacent peer attention are positive influences on rate of learning and accelerating production rates. Setting easily obtainable production goals and then gradually increasing the criterion for reinforcement is an effective shaping technique.

Specific Adjustment and Prostheses

The range of adjustments and prostheses that can be employed to facilitate the performance of the visually impaired is wide in terms of types available and complexity of design and operation. The personnel responsible for making decisions regarding the use of modifications need to consider these factors:

1. The nature of the task and the materials required by the task;
2. The nature and degree of sensory input channels the

student has available for use;

3. The level of physical and intellectual functioning of the student.

Some visually impaired students, particularly those who are mentally retarded, will be unable to profit from several of the more complex prostheses discussed below. However, the future holds much promise for the development of complex technological devices which will at least partially by-pass or eliminate these students' handicaps. Regardless of the students' intellectual capacity, he or she will be helped by some combination of adjustments that can be made in the vocational programming environment. These adjustments have been listed roughly in terms of the complexity and cost (Mclaughlin, 1979).

1. Direction concerning necessary safeguards of a student's residual vision should be followed judiciously. Students with certain types of degenerative eye conditions may be restricted from excessive jumping, bending, or jarring body contact.
2. Surfaces (including walls, tables, signs, papers, etc.) within the classroom should have non-glossy finishes. All visual stimuli which must be discriminable by the student should be clear and distinct; images should reflect maximum contrast with their background. Varying brightness and saturation of colours is an effective way of doing this.
3. Any printed matter which the student discriminates (e.g. safety signs, instructions) should be in larger-than-average print. Partially sighted students often need matter printed.
4. Some students may need frequent tye rest periods to prevent blurring. Vocational planning should take such factors into consideration.

5. When instruction requires the student to use paper and pencil, slightly rough, unglazed cream manila paper is recommended (Hathaway, 1959). Either green or black chalkboards should be used in conjunction with soft, large, white chalk (Hanninen, 1975).
6. Some visually impaired individuals require less than usual light intensities (e.g. pathologies such as albinism) and others require more than normal light intensities.
7. The use of cut-aways and mockups (frequently larger than life-size) help the visually impaired student to grasp the materials he is learning to work with. When learning to work on more complex tasks such as small engines, these modifications are essential.
8. Dymo tape (using normal orthography or braille) are useful in labeling tools, parts, and other equipment such as rulers, wrenches and feeler gauges. The raised characters are often indispensable as an aid to identification tasks.
9. Since it is important for all materials to have a specified location, several modifications may be necessary. Tools can be placed on a wall pegboard with an outline of each tool painted on the pegboard. Rocks made from wood or styrofoam into which tools exactly fit are also useful. Storage boxes which can be used to compartmentalize items (pencils, brushes, nuts, bolts, nails, etc.) also facilitate location of important objects. When taking apart machines, sorting parts, etc. the use of metal cupcake trays make the job much easier.
10. The instructor should provide individual attention and feedback on most occasions; however, when that is not possible, partially sighted or sighted students can be placed with totally blind individuals to complete the work.
11. For some tasks, jigs or bolt holes are useful to hold in place the component being worked on by the student. This allows the student to concentrate on what he is doing and not on holding the component in correct position.
12. To overcome the difficulty incumbent on the visually impaired when parts fall or roll off desks or work benches, these adjustments can help: (a) provide work tables which have a shallow well in the middle to collect pieces; (b) use a magnetic table top to retain metal pieces; (c) provide an apron on the table to catch fallen pieces.

13. To prevent misalignment of parts while working on them, parts can be pinned, glued, or held together by a small dab of grease (depending on the kind of materials being worked on).
14. When preparing to cut materials like metal or wood, cutting lines can be scribed deeply to allow the student to feel the line with his fingers.
15. During early instruction on cutting with scissors and later with metal ships, perforated paper and sheet metal are useful in guiding cuts.
16. Raised line drawings help the visually impaired to understand what the materials will look like after it is cut.
17. Tools should be provided at each work centre even though they may overlap with other work centres; this makes the return of tools more efficient.
18. Materials that are purchased and used on the basis of their color (e.g. thread, wire) should be placed in a color code order and labelled with dymo tape for easy selection by the student.
19. Whenever lights are used as signals (machine is in operation, fire alarm, exit signs), they should be replaced with auditory signals or, in some cases, lights that generate enough heat to feel.
20. Students should practice emergency shut-off of machine tools and the instructor should periodically simulate emergency conditions to check the students' reactions.
21. Safety zones can be marked with abrasive tape (3-M tape or Ferrox) on the floor.
22. "Shorts" (wood scraps, metal, etc.) should be retrieved and placed in a scrap box following each work assignment to prevent safety hazards.
23. When counting is an essential part of the task, visually impaired students can be trained to use an abacus effectively. An abacus can be modified to prevent the beads from sliding from their desired position accidentally.
24. Cassette tapes can be prepared that allow the student to review important instructions or steps in a sequence at his leisure. These should not be used for basic instruction, but as aids for reviewing material, likewise records and talking books, which are more expensive and more general in their use, can be used.
25. Several optical aids are available ranging in price from minor to very expensive: (a) the loupe; (b) spectacle magnifiers; (c) telescopic aids; (d) high plus lenses.

These theoretical and practical considerations are essential to a successful development and implementation of pre-vocational/vocational education program. The theoretical and practical considerations are extracted from a research entitled Vocational Curriculum for Visually Impaired Persons, written by Mclaughlin in 1979.

Summary

This chapter was divided into three sections. The first section discussed an overview of technical pre-vocational educational programs available in Kano State. Two examples of such programs were presented.

The second section presents criteria for developing the proposed pre-vocational education program for the visually impaired, for Kano State junior secondary schools. The criteria identified provides guidelines for developing the proposed program.

The third section of this chapter gives lists of some theoretical and practical considerations in providing pre-vocational and vocational education programs for the visually impaired students. The outline of the pre-vocational education program for the visually impaired will be given in the next chapter.

CHAPTER V

PROPOSED PRE-VOCATIONAL EDUCATION PROGRAM FOR THE VISUALLY IMPAIRED IN KANO STATE IN NIGERIA

Introduction

Nigeria is just making a start in putting both the recommendation made in the Oxford Conference of 1949 and recommendation submitted in the final report of the implementation committee for the National Policy on Education (1978) into practice (Daramola, 1976). Major decision of the Oxford Conference of 1949 was that blind children "should be given full opportunity for general and vocational education in schools adequately equipped for the education of the blind and with qualified teachers," and that National systems should ensure "to all blind children education according to their interests and aptitudes at least equal to that they would have received had they not been blind" (Wilson, 1957).

Part of the Nigerian national aims and objectives of education during the current plan period (1981-85) focuses on:

> The acquisition of appropriate skills, abilities and competences both mental and physical as equipment for the individual to live in and contribute to the development of his society. (FMI, 1977, p. 4)

In a fast developing Nigeria, the balanced industrial-commercial-agricultural economy has rendered unskilled and untrained manpower virtually obsolete. If the visually impaired individuals are to earn their living and to contribute to the development of the nation, the present pre-vocational/vocational educational programs should be expanded, or new ones need to be put in place. The pre-vocational education programs will prepare the visually impaired for either further education or for employment via the apprenticeship system.

The basic purpose of general education in a society aims at equipping its citizens to live and contribute effectively in that society. Pre-vocational education as a part of general education in the junior secondary school curriculum is a desirable approach towards achieving the aims. The proposed pre-vocational education is designed to be an integral part of general education offered at the junior secondary school. The program could be implemented in either special pre-vocational schools such as the Kano State Technical and Vocational Training Centre, or in the regular junior secondary schools.

The visually impaired individual functions more effectively when provided with supplementary programs and other special services. Such special services are included in this program. The services include: counseling, resource rooms, orientation and mobility, and remediation. Some of the services are included as part of the courses offered in the program--such as survival skills.

Philosophical Statement

It was established from the review of the literature on curriculum that the function of philosophical statement is to give direction to both the society and the education system of that society.

The Nigerian Constitution places the responsibility for the establishment of the philosophy of Nigerian education on the Federal Government. It is in view of this reason that the researcher adopted the philosophy of Nigerian education as stipulated by the Federal Government in its National Policy on Education (1977) as the philosophy of the proposed pre-vocational education program for Kano State junior secondary schools. The philosophy of Nigerian education is stated in this way:

> Nigeria's philosophy of education, therefore, is based on the integration of the individual into a sound and effective citizen and equal educational opportunities for all citizens of the nation at the primary, secondary and tertiary levels, both inside and outside the formal school system. . . .
> Nigeria should be a free, just and democratic society, a land full of opportunities for all its citizens, able to generate a great and dynamic economy, and growing into a united, strong and self-reliant nation. (pp. 4-5)

Program Objectives

Aims, goals and objectives were identified in the review of literature as a component of a curriculum. This component gives direction and guidance to what curriculum should cover; what to emphasize, content to select; and which learning experience to stress as well as what to evaluate. Aims, goals and objectives are used as synonyms for this study.

The Federal Government of Nigeria established aims, goals, and objectives of all levels of education. Secondary education in Nigeria has the following aims:

> 1. Preparation (of students) for useful living within the society; and
> 2. Preparation (of students) for higher education. (National Policy on Education, 1977, p. 10)

In specific terms the secondary school should:

1. Provide an increasing number of primary school pupils with the opportunity for education of a higher quality, irrespective of sex, or social, religious, and ethic background;
2. Diversify its curriculum to cater for the differences in talents, opportunities, and roles possessed by or open to students after their secondary school course;
3. Equip students to live effectively in our modern age of science and technology;
4. Raise a generation of people who can think for themselves, respect the views and feelings of others, respect the dignity of labour, and appreciate those values

specified under our broad national aims, and live as good citizens; and

5. Inspire its students with a desire for achievement and self-improvement both at school and in later life.

The following are the objectives developed for this research:

1. To provide the students with experience and information dealing with the world of work and occupational opportunities in business and/or industry;
2. To assist student discovery and development of personal aptitudes, interests, creative technical problem solving abilities, self-reliance, sound judgement, resourcefulness, and adaptability;
3. Assist student development of proper attitudes toward health, safety and co-operative relationships with other persons;
4. Provide safe exploratory experiences in the use of tools, energy, equipment, and materials appropriate to various technologies prevalent in a productive society;
5. To provide students with experiences which will assist them in making realistic career choices;
6. To provide visually impaired students an opportunity to learn through non-visual senses; and
7. To provide the ability to adapt and modify equipment commensurate with their specified handicap.

These objectives were derived from the objectives of those pre-vocational education programs received from officials serving the visually impaired in the United

States, taking into consideration the Nigerian secondary school objectives.

Program Structure

As previously stated in the review of literature on Nigerian education structure, that secondary education in Nigeria is of a six-year duration and given in two stages, a junior secondary stage and a senior secondary stage, each stage being of three-year duration. The Nigerian Policy on Education sets criteria that governs the structure of junior secondary school education. Included in the criteria are:

1. Junior secondary schools should be both pre-vocational and academic; it will be free as soon as possible, and will teach all the basic subjects which will enable pupils to acquire further knowledge and develop skills;
2. Students who leave school at the junior high school stage may then go on to an apprenticeship system or some other scheme for out-of-school vocational training.

This pre-vocational education program for the visually impaired is an integral part of general education at junior secondary schools. The program is flexible in the sense that the program could be implemented both in special education schools for the visually impaired and/or in regular junior secondary schools. The pre-vocational program is three years in duration. The first two years students are guided through a series of exploratory experiences in a variety of business and industrial education areas. Included in the first two years are general education courses such as language arts, general science, mathematics and social studies, and religion. The instructional content of the third year compleiments the first and second years and focuses on "real" vocational courses as opposed to exploratory experiences.

The instructional content of the program deals with industry, its organization, processes, occupations, materials, products, and the problems resulting from the impact of technology on the Nigerian society. Areas of concentration include: power mechanics, material technology, visual arts (graphics), construction, manufacturing, consumerism, business and office education, and home economics. Safe practices in the use and care of materials, tools and equipment are emphasized.

In the third and final year of the program, students are to choose their area of specialization according to their ability and interests. Students will explore courses offered at senior secondary schools and occupational opportunities in the world of work.

Time Organization

Kano State secondary schools operate on terms; there are three terms a year. A term extends for a minimum of twelve weeks. The last two weeks of every term is normally devoted to end of term examinations. The learning modules to be designed for this program would be for a minimum of ten weeks of instruction. The rationale for designing the learning activities in modules is to provide the students and the teacher with a guide to organize their studies. The content for each module to be developed is included in this study. Each content outline for each field of study, unit or topic must include objectives, concepts, learning tasks and references. For each year, the minimum instructional time is of thirty weeks. A period of instruction in most junior secondary schools lasts for a minimum of fourty five (45) minutes.

The time allocation at the junior secondary schools for each week is four (4) periods which are broken down into two (2) lessons. Each lesson lasts for two periods with a total of one and one half (1½) hours. The total time allocation per week is equivalent to three (3) hours. A term of ten weeks of teaching gives a total of thirty (30) hours and a total of ninety (90) hours a year (see figure 7).

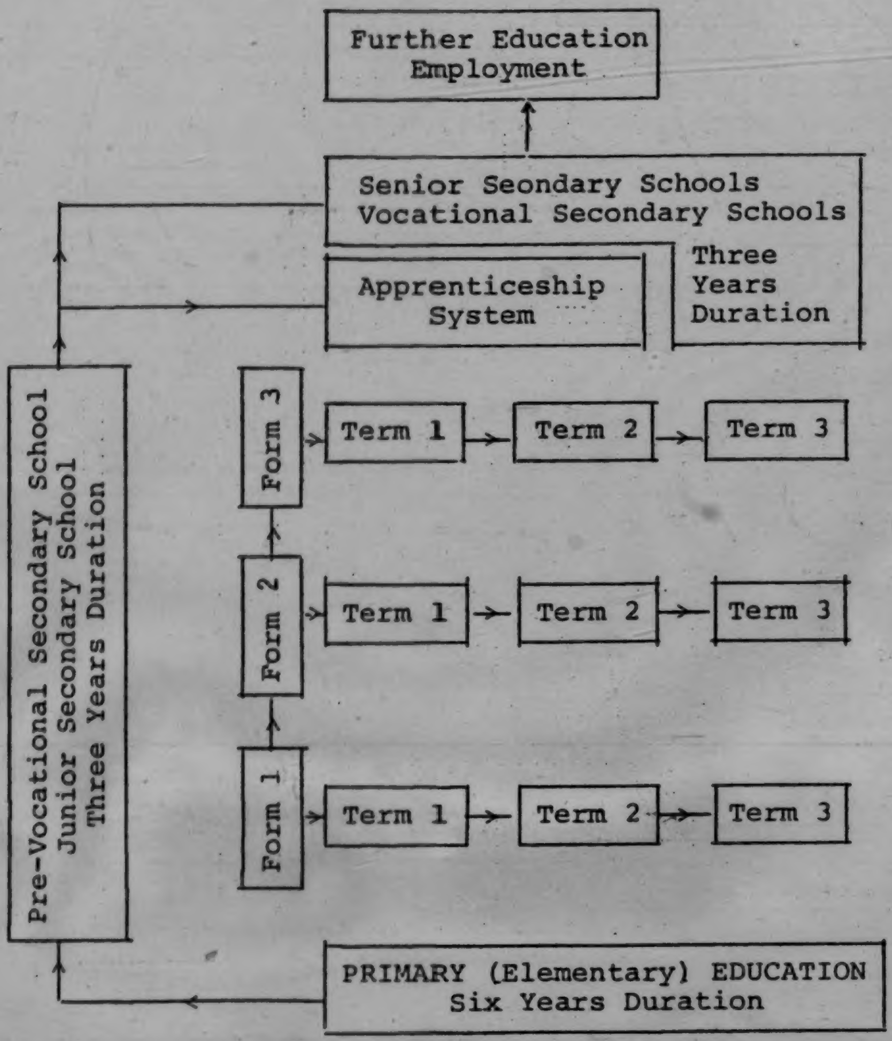
Program Content

Curriculum content was identified in the review of literature as a component of a curriculum. Hyman (1973) identifies three elements that constitute a curriculum content. Hyman defines content as:

> Knowledge (i.e. facts, principles, definitions), skills and processes (i.e. reading, writing, calculating, communication and values). (p. 4)

Figure 7

Kano State Junior Secondary School Structure


Further Education
Employment
Senior Seondary Schools
Vocational Secondary Schools
Three
Years
Duration
Apprenticeship
System
Pre-Vocational Secondary School
Junior Secondary School
Three Years Duration
Form 3
Term 1
Term 2
Term 3
Form 2
Term 1
Term 2
Term 3
Form 1
Term 1
Term 2
Term 3
PRIMARY (Elementary) EDUCATION
Six Years Duration

First Term: Mid-September to Mid-December;
Second Term: January to March; and
Third Term: Mid-April to Mid-July.

The primary basis for content selection must always be the stated aims, goals and objectives of the curriculum (Taba, 1962; Zais, 1976; and Smith *et al.*, 1957). Taba (1962, pp. 267-284) proposes the following criteria for selecting curriculum content: validity, significance, usefulness, balance of breadth and depth, provision for achievement of a broad range of objectives, learnability and adaptability, as well as appropriateness to the needs and interests of the learner. In addition, the researcher identified the following criteria for the content validity of the pre-vocational education program for the visually impaired, for Kano State secondary schools:

1. The type of industrial establishment operating in the State of Nigeria;
2. The Nigerian National aims, goals and objectives of education including the objectives of secondary school education;
3. The prevalent learning areas identified in the program guides, course offerings and other research materials reviewed and analysed in this study;
4. The content included in the prevalent materials and technologies of the Nigerian society.

As previously discussed in the section on history of Nigerian Education (see p. 24), that western education was first established in the southern part of Nigeria and later (about a century) in the Northern States. The difference in time created an educational gap in terms of western education. Kano State, being in the northern part of Nigeria, is affected. In 1976, Kano State was ranked as among the three most backward states in terms of western education in the country.

The effect also could be seen in the school curriculum of Kano State secondary schools. Most of the pre-vocational curriculum that exists in the secondary schools consists of only the three traditional subjects (woodworking, metalworking and technical drawing).

Considering the fact that Kano State is the second largest commercial and industrial area in Nigeria, and the rate at which industrial growth is taking place (see p. 69), expansion of the existing pre-vocational education programs or new programs become necessary. Therefore, the instructional content and the scope of this program for the visually impaired consists of courses mainly on commercial and industrial occupational areas, in order to reflect the need of the society.

Although Kano State is an agricultural state, the content of this pre-vocational program does not directly contain courses in agriculture, because at present, Nigeria is undergoing an industrial revolution which resulted in a shift from agrarian period to industrial age. The shift caused the agricultural sector to go into merchandized farming. Merchandized farming involves the training of mechanical engineers, technicians and craftsmen, so that to provide the manpower needed to operate and maintain the agricultural equipment. It means that visually impaired students trained in this program in areas such as power technology, wood technology, metal technology and electricity could work in the agricultural field as an operator or a technician.

Learning Modules

Apart from few courses in the learning modules developed for this study that are unique to the visually impaired education, the rest are similar to those pre-vocational education program for non-visually impaired students. The main differences between the pre-vocational program for the visually impaired and that of regular such programs is in teaching methods and teaching strategy (oral and tactual orientation, multi-sensory modalities, supplementary programs, and other materials and facilities that should be modernized to accommodate the visually impaired (see pp. 106-112).

The learning modules consist of courses that are unique only to the visually impaired; such courses include: survival skills, daily living skills, units on orientation and mobility in the workshop. A list of ways employed in training the visually impaired in pre-vocational education and other considerations were given on pages 161 to 165. Figure 8.0 shows the structure of the learning modules of this program.

Figure 8

Structure of the Learning Modules

FORM (GRADE)	FIRST TERM	SECOND TERM	THIRD TERM
	Module 1.1	Module 1.2	Module 1.3
FORM ONE	Woods Metals Plastics Ceramics	Introduction to Typing Intro. Home Economics or Intro. to Survival Skills General Business	Metals Woods Drafting or Intro. to Arts
	Module 2.1	Module 2.2	Module 2.3
FORM TWO	Plastics Ceramics Drafting (Graphics) or Visual Arts	Textile Consumerism Intro. to Power & Energy	Electricity Electronics Power Mechanics
	Module 3.1	Module 3.2	Module 3.3
FORM THREE	Metal Technology Wood Technology Concrete	Survival Skills Typing Cooking	Electricity Electronics Power Mechanics
WORK EXPERIENCE			

Form One (Grade 7)

First Term - Module 1.1

The module introduces students, boys and girls, to woods, metals, plastics and ceramics as materials, and gives occupational information and guidance in each of them.

Plastics/Woods/Metals/Ceramics: The general content in each of these areas includes: sources, processing, societal implications, identification, product planning, separation processes, forming processes, conditioning processes, combining processes, and occupational information.

Second Term - Module 1.2

The module introduces students to typing, home economics or survival skills and general business.

Introduction to typing: Introduces student to the keyboard and manipulative parts of the typewriter through large print or braille textbooks and taped dictation. Correct posture and stroking techniques are stressed.

Content: Introduction to (a) sentences; (b) paragraphs; (c) tabulation; (d) vertical and horizontal centering manuscripts; and (e) short personal and business letters.

The objective is for a student to acquire skillful co-ordination of machine parts.

Introduction to Home Economics - Content: Included are units in the following: (a) clothing construction; (b) food preparation; (c) nutrition; (d) meal planning; (e) family life; (f) human development; and (g) home furnishing.

Introduction to survival skills: develop basic daily living skills for maximum independence. The content includes: (a) clothing; (b) food preparation; (c) nutrition; (d) meal planning; and (e) human development.

General business: introduces student to business and office education. The content includes: (a) economic systems; (b) business and consumer; (c) exchange, money and banking; (d) Production and distribution of goods; (e) insurance; (f) credit; and (g) practical management.

Third Term - Module 1.3

The module introduces students to tools and machines as applied to woods and metals. Included in this module is a choice between drafting (graphics) and introduction to Arts.

Metals (content): (a) basic bench tools—use and maintenance of measuring and layout tools, cutting tools, hand files; (b) theoretical knowledge of machines-- parts and functions of the shaper, the lathe, the miller, and drilling machines.

Woods (content): (a) basic bench tools--measurement and layouts, cutting and drilling, smoothing (sandpaper); (b) theoretical knowledge of machines--bandsaw, the lathe, the jigsaw, circular, planer.

Drafting. The stress here is to aid students to the understanding of the sketches and drawings done in the metal and wood areas and gives its relationship and importance to these areas. The content includes: (a) an overview of the drafting area; (b) freehand sketching; (c) drawing interpretation; (d) image assembly; (e) image transfer; and (f) occupational information.

Introduction to Arts. Students in introduction to art experience a variety of two-dimensional and three-dimensional art activities. Specific areas include sculpture, collage, printing (graphics) and textiles. The contents include: (a) two-dimensional design; (b) three-dimensional design; (c) realism; and (d) abstraction in art.

The development of manipulative skills is expected in order for the students to employ these concepts in a variety of media.

Form Two (Grade 8)

First Term - Module 2.1

The module deals with processes in plastics and ceramics and further studies on drafting (graphics)/visual arts.

Plastics. Basic introductory process. The contents include: (a) product planning--design principles, measurement systems; (b) separation processes--chip removal, non-chip removal; (c) forming processes--bending, vacuum/blow forming, casting/moulding; (d) conditioning processes--heat;

(e) combining processes--adhesion, mechanical fastening, cohesion, coating, mixing; and (f) occupational information--senior secondary program, career opportunities.

Ceramics. Introduces students to design and technique of ceramic handbuilding and various sculpture techniques. Contents include processes of: (a) extrusion; (b) hand forming; (c) slip casting; (d) compression; (e) glazing; (f) gas making; (g) firing and glaze; and (h) clay making.

Drafting (graphics). As a continuation to freehand sketching and instrument drawing. Contents include: (a) freehand sketching--isometric, oblique, orthographic; (b) interpretation of drawings; (c) processes--instrument drawing, lettering, charts and graphs, scale; (d) occupational information--career possibilities, further education.

Visual Arts. This course is designed specifically for partially sighted students. Students become aware of the visual aspects of art by developing major design elements in their work. Contents include: (a) design elements--line, shape, value, color, pattern, texture and form; (b) drawing and painting; (c) styles; (d) foundation; (e) advertising layout; and (f) application of these major design elements in these various areas.

Second Term - Module 2.2

The module covers the areas of textile, consumarable and power and energy technology.

Textiles. Introduces students to simple design problems encountered in the textile areas. Emphasis is placed on design and craftsmanship applied to specific projects. The contents include: (a) techniques for combining fabrics and fibers--stitchery, weaving, macrame, crochet, tie-dye, batik fabric.

Consumerism. Introduces students to experiences of management skills in both business and industry. Contents include: (a) packaging--customer appeal, practicality, cost; (b) advertising--advertising code, printed matter, radio advertising; (c) marketing--methods (counter and direct sales and self-service and mail order); (d) accounting--procedures (income and expenditures and records and inventory), business machines, communication systems; (e) personal training; (f) occupational information--senior secondary program, career opportunities.

Introduction to power and energy. Basic study of sources and types of energy and how it is converted into useful power that is used in today's technology. An overview of the importance of power and energy and how it will affect students' daily lives. The main focus is for the students to develop skills in the use of tools and materials common to theory and practice of the power industries. The contents include: (a) power; (b) energy; (c) shop safety; (d) orientation to the shop area; and (e) an understanding of various basic handtools.

Third Term - Module 2.3

The purpose of this module is to introduce students to electricity, electronics and power mechanics. The module specifically deals with the basic concepts and principles of each area.

Electricity. The contents include: (a) sources of electricity--theory and method of generating; (b) circuiting--basic curcuit, measurements, types; (c) controlling--on-off switching, overload control, directional control, control of electron flow; (d) magnetism--magnets and magnetic fields, electro-magnetism, uses.

Electronics. The contents include: (a) component function--components, color coding; (b) electronic sound generation--oscillator circuit components; (c) wireless transmission--regulations, communications, operation of transmission devices.

Power Mechanics. The contents include: (a) small gas engine--identification of types, disassembly, assembly, running/analysis; (b) small gas engine tune-up--trouble shooting, replacing tune-up parts; (c) carbon powered car--product planning, manufacturing, testing.

Form Three (Grade 9)

First Term - Module 3.1

The module introduces students to woods and metal technologies. Included also in the module is the area of concrete and provides occupational information in each of the areas.

Metal Technology. The content includes: (a) sources--location, extraction; (b) processing--refining/ converting, alloying; (c) identification--properties, testing; (d) product planning--design principles, layout and measurement tools; (e) separation processes--non-chip and chip removal; (f) forming processes--bending, forging, casting/moulding; (g) conditioning processes--heat, physical; (h) combining processes--adhesion and cohesion, coating and mechanical fasteners; (i) occupational information--senior secondary programs, career opportunities.

Wood Technology. The content includes: (a) sources--location, logging; (b) processing--lumber, plywood; (c) identification--classification, properties, testing; (d) product planning--design principles, layout and measurement tools; (e) separation processes--chip and non-chip removal; (f) forming processes--bending, casting/moulding; (g) conditioning processes--moisture; (h) combining processes--adhesion, coating and mechanical fasteners; (i) occupational information--senior secondary programs, career opportunities.

Concrete. Introduces students to concrete mixing and forming methods. The content includes: (a) placing; (b) finishing; (c) curing; (d) reinforcing; (e) coloring; and (f) testing.

Second Term - Module 3.2

The module introduces students to more in-depth experiences in survival skills, typing and cooking. This module compliments module 1.2.

Survival Skills. Devoted to developing one's basic independent living skills. The content includes in-depth practices in: (a) food preparation; (b) meal planning; (c) clothing; and (d) self-management.

Typing. Designed for students to acquire basic skills in typing for further education or for employment. Students learn the keyboard and are able to manipulate parts of the typewriter. Content includes typing activities of: (a) personal notes; (b) letters; (c) tabulation; (d) vertical and horizontal centering; (e) manuscripts; (f) reports; (g) other information typed in every-day life; (h) correct posture; (i) stroking techniques.

Cooking. Introduces students to foods, a study of foods in the basic four food groups. Content includes: (a) nutritional needs of the students; (b) food preparation centered around the basic food groups; (c) manu planning; (d) simple meal preparation; (e) food preservation--freezing, canning, jelly-making; (f) selection, use and care of kitchen equipment.

Third Term - Module 3.3

This module introduces students to in-depth experiences in electricity, electronics and power mechanics. In addition, occupational information is stressed. This module compliments module 2.3.

Electricity. Content includes: (a) general utilization--conversion of electrical energy into mechanical, heat, light and chemical energies; (b) telephone/telegraph--conversion of electrical energy into sound; (c) appliance maintenance--safety, trouble shooting; (d) guidance--senior secondary school programs, career opportunities.

Electronics. Content includes: (a) radio--history, radio receivers, systems; (b) phonograph--history, sound waves; (c) guidance--senior secondary programs, occupational opportunities.

Power Mechanics. Content includes: (a) model rocketry--safety code, product planning, manufacturing the rocket, launching; (b) fluid power--forms of energy, input, control devices, transmission devices, output; (c) mechanical power--forms of energy, input, control devices, transmission devices, output; (d) guidance--career opportunities, senior secondary school programs.

Work Experience

At the completion of each module (1 and 2) off-campus work study of not less than six (6) weeks should be followed during the long break of each year.

On-campus Work Experience. This provides a meaningful work experience in one of the following areas: maintenance, food service, teacher aid, clerical, custodian, and storeroom. Students should perform satisfactorily in an assigned job on campus with a direct supervisor. Student workers are required to perform the actual duties required of the employee in the specific assignments.

Special Services

Remediation

The aims of the remedial program are to provide each visually impaired student with special individualized instruction that will better improve a student's chance of succeeding in the pre-vocational education program and ultimately the world of work.

Remediation became necessary to some visually impaired students because research has shown that the visually impaired are one year behind their sighted peers when equated on mental age (see p. 108).

Students are scheduled in this area based upon evaluation and/or teacher referral. Those who need remediation are to go through a course called developmental skills.

Developmental skills is a study of the basic skills essential to the exploratory introductory career education classes. This course provides each student with an opportunity to practice basic skills essential to success in the introductory level courses. The primary focus of the course is to introduce students to basic materials, tools, concepts, and processes used in pre-vocational recreational areas at the student's immediate school. Opportunities are available for the students to make products in art and woodworking.

Orientation and Mobility

Orientation and mobility training is an essential element in the pre-vocational training of the visually impaired. The knowledge of all skills necessary to becoming a competent, safe, and psychologically secure independent traveller to individuals with varying degrees of visual impairment is vital for independency and employment.

By the time the visually impaired arrives at the pre-vocational program, he/she has more than likely been exposed to a variety of techniques and procedures regarding orientation and mobility. Parental and pre-school instruction, elementary school related instruction and a comprehensive course by the certified mobility instructor will have taught the visually impaired child a number of movements.

Additionally, resource rooms would be used to provide instruction in the use of various aids, techniques, services, methods and skills used in orientation and mobility to be instructed as to enhance the individual's vocational needs and aspirations.

Peripatologists to prescribe for each student a source of instruction to utilize the student's remaining sensory modalities and the prescription of long-term care and/or any aids by physician and optometrists.

Counseling

Counseling is applicable only when the individual needs arise; under the guidance of a vocational counselor, each student should:

1. Analyse his/her strengths or weaknesses;
2. Plan a realistic career;
3. Discuss personal problems, if need be;
4. Develop awareness of self, as a maturing personality and have many opportunities to promote positive interaction with others; and
5. Gain insight into the significance of the family and human sexuality in the structure of society and in developing values and attitudes.

Supplementary Programs

Supplementary programs are to be a part of the school programs and should include such programs as: itinerant program, teacher-consultant program, special school, daily living skills program, and resource teacher or resource room. Courses offered in these programs should include courses such as the individual studies and world of work.

Evaluation of the Programs

Evaluation studies and methodologies are designed to provide answers to the concern expressed by government and public institutions as to the worth of educational programs.

Cronbach (1963) identified the following as the functions an educational evaluation performs:

> 1. Course improvement: to determine both strengths and weaknesses, and to indicate areas where change is required;
> 2. Decisions about individuals: to locate the needs of learners in order to plan the instructional process more effectively; and
> 3. Administrative regulations: to discover the worth of the educational system and of its instructional staff. (p. 16)

Strategies and models have been developed to provide systematic and empirical evaluation of educational programs (Stufflebeam, 1969; Stake, 1967; Alkin, 1967; Provus, 1969; Scriven, 1967).

The central focus of evaluation of education is to ascertain the worth of an educational program with reference to the particular content within that program, the particular learners involved, the particular teachers who are interacting with the learners, and the particular environment in which the program is operating. The roles of evaluation differ from one program to another, but the intent remains to provide information for future program decisions.

Vocational evaluation is defined as a process designed to assess and predict work behavior and vocational potential, primarily through the application of a variety of practical techniques and procedures. This definition implies that information gained through vocational evaluation is useful both for short-term and long-term planning (Mclaughlin, 1979).

The evaluation methods recommended for this program are as follows.

Student evaluation of the program (SEP). At the end of each term an evaluation form should be given to students to evaluate whether or not the objectives (which were given to the students at the beginning of each term) were met or not. On the evaluation form provision should be made for students to indicate both the weaknesses and strenghts of the program as well as areas that need improvement. The SEP could be repeated at the end of the year, in which students are to ascertain if the objectives of that particular year's phase of pre-vocational education program were achieved or not.

Teacher evaluation of the program. The teachers for the entire phases of the pre-vocational education program should also evaluate each term's activities. This will help them identify areas that need to remain, areas that need to be modified and the areas that might be deleted. For the teacher evaluation of the program to have any validity, it should be correlated with the students' evaluation of the program to identify the areas of agreement and disagreement so that the teacher could act accordingly to improve the program.

At the end of each year, the teachers should evaluate the program which is to serve as a gauge for the activities taken during the year for each phase of the program and to identify areas that need to be modified. The teachers should also review all of the components of the total program. If any of the five components of a curriculum is wanting, then changes can be made.

Lastly, the teacher should evaluate the entire curriculum to ascertain if the program's objectives are being achieved or not. Also, to determine if instruction is compatible with the curriculum content, and if the content is in concert with the intended learning outcomes, and whether or not the aims and goals of the curriculum complement the philosophical statement that was established for Nigerian education.

Professional evaluation of the program. Program evaluation of the pre-vocational education program for the visually impaired is to be conducted by curriculum practitioners from Kano State Ministry of Education to determine the validity of all facets of the program as well as its worthwhileness and appropriateness.

The three evaluation schemes discussed above should be undertaken continuously and whatever changes that are deemed necessary to better the program should be undertaken with dispatch.

CHAPTER VI

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

Nigeria is just making a start in putting both the recommendation for the visually impaired made in the Oxford Conference of 1949 and the recommendation submitted in the final report of the implementation into practice. In the initial stage of putting the recommendation into practice, Nigerian government sets aside funds for the implementation of innovative programs for the visually impaired in particular and exceptional children in general.

The purpose of this study was to develop a pre-vocational education program at the junior secondary school level for the visually impaired, for implementation in Kano State junior secondary schools. Vocational and rehabilitation educational programs for the visually impaired exist in Nigeria. These programs need to be expanded or new ones need to be put in place, if these individuals are to make a significant contribution to Nigerian society by becoming productive members of that society. Pre-vocational education programs at the secondary school level do not exist in Kano State at the time of this study.

To achieve the major purpose of the study, a review of literature was conducted. Content of the review of literature includes: an overview of Nigeria in general and Kano State in particular; educational system of Nigeria and Kano State, with emphasis on education in that state; and some aspects of Nigerian National Policy on Education. Included in the Policy are the Nigerian philosophy of education and aims and objectives of education in Nigeria. These philosophy, aims and objectives helped the researcher develop aims, goals and objectives and the philosophy of the proposed pre-vocational education program. The section on Nigerian economy and manpower situation serves as a resource for content selection for the developed pre-vocational program and gives an overview of occupational areas that are short of manpower. Included was a review and analysis of the works of curriculum specialist, theorist and practitioners to identify the elements or components that make up a curriculum. The review and analysis guided the researcher to structure the program of the study. The last section on the review of literature describes educational programs for the visually impaired; this helped the researcher to identify types and the nature of educational programs for the visually impaired.

Data Collection

The study relied much on two sources of information; namely, library research, a review and analysis of pre-vocational/vocational education materials and program guides received from the United States officials responsible for educating the visually impaired. The data analysed were received from officials across the United States. The names and addresses of thirty officials that are concerned with education for the visually impaired were identified partially in the directory agencies serving the visually handicapped in the United States (20th edition, 1978), and partially from the review of literature cited as having outstanding programs for the visually impaired. Letters requesting pre-vocational/vocational education program guides, names of contant persons, and/or institutions were sent to the identified officials.

The pre-vocational/vocational education program guides obtained in response to the researcher's request were analysed and studied in detail.

Findings

It was established from the detailed analysis of the contents of materials Meceived that emphasis must be made to mainstream the visually impaired individuals as applicable as possible. Visually impaired students who are mainstreamed receive special services from the supplementary programs-resource room or itinerant program.

Most of the program guides, handbooks, and curriculum guides contain aims, goals and objectives and all indicated that the aims of pre-vocational education programs are: to assist the student discovery and development of personal aptitudes, interests, creative-technical problem solving, abilities, self-reliance, sound judgement, resourcefulness, and adaptability; provide an exploratory experience in the area of business and industry; and to provide the visually impaired students an opportunity to learn through non-visual senses. The purpose of the program is to prepare students for senior secondary school courses and/or employment.

Other integral parts of the pre-vocational/vocational program are the safety program, and the work experience program. Such programs appeared in four of the programs analysed in this chapter. Another program that appeared in five of the program guides is the inclusion of the supplementary programs. Such supplementary programs include: resource room, itinerant-teacher, and teacher-consultant programs. The method employed in providing the visually impaired with the supplementary program differs from school to school. Such programs in some of the schools are offered during the summer session, while in others, the program is offered during the school session (September to June) as part of the courses of the main program.

The organization of the courses in the various programs received in the course of the study differ. In some programs the pre-vocational program is separated from vocational and cluster programs, while in other programs the pre-vocational education program is meshed with vocational programs, pre-vocational courses being the prerequisite of vocational courses. The level at which the pre-vocational education program is offered differs. Some schools offered the program starting from the upper elementary level through junior high school. In other schools, pre-vocational program is offered at the junior high school.

The instructional content and the learning activities in the program guides received differ in organization but the intent and the learning activities in the programs are similar. The researcher identified the following areas of instruction as areas that are included in pre-vocational educational programs for the visually impaired. The areas included are: wood technology; metal technology; piano technology; power technology; electricity/electronics; ceramics; plastics; graphics/printing; home economics/ survival skills; business and office education; and work experience.

Evaluation methods are included in five of the program guides. Two programs contain a philosophical statement. Figure 6.0 shows a summary of the findings of this research.

Conclusion

On the basis of the following findings of the study, the following conclusions were drawn.

Almost in all curriculum materials, the terms "aims," "goals" and "objectives" were used as synonyms. Philosophy statement was omitted in almost all of the curriculum materials.

In general, all curriculum materials that were part of the study contained content.

Work experience was identified in most of the curriculum materials as part of the curriculum as well as supplementary programs. The supplementary programs that often appear in the materials are: the itinerant program, the teacher-consultant program, resource room and special schools where daily living skills are taught.

One area which is considered by some curriculum specialists (Beauchamp, 1975) as the weakest component in a curriculum is evaluation. Surprisingly, the curriculum materials obtained and analysed in Chapter III contain either an evaluation criteria or suggestions on how to evaluate the students' performance and the programs. The materials also contain a safety program, which is integral to the main program, and special services. Such services include remediation and training in orientation and mobility.

Lastly, the review of the literature, the research materials analysed in Chapter III, all stressed the need to mainstream the visually handicapped into regular school programs wherever possible, and the programs for the visually impaired should be as near as possible to regular programs in nature. Because of that reason, the proposed program could be adapted to be used in regular programs.

The instructional content that were identified in the curriculum materials received from the participants of the study does not include other occupational areas other than commercial and industrial occupational areas.

Lastly, to my surprise, the pre-vocational/vocational curriculum materials that are used for educating the visually impaired in the survey area of this research were not different from those used in pre-vocational programs for the sighted pupils. The researcher thought that since the visually impaired are classified among those who need special education, then, their curriculum would be special.

Recommendations

As a result of the research study, the recommendations following are made to the Ministry of Education in Kano State.

1. It is recommended that the Ministry of Education should study and implement the pre-vocational education program for the visually impaired as proposed in Chapter V of this study.
2. It is recommended that the proposed pre-vocational education program be implemented on an experimental basis in

schools where laboratories and workshops are available and with students who will complete the program.

3. It is recommended that each school should establish a resource room where the visually impaired could receive special instruction ~~as~~ well as to be able to use special materials and equipment that are necessary for his/her education.
4. It is recommended that administrators and teachers serving the visually impaired should take into consideration the theoretical and practical considerations that are essential in providing education for the visually impaired listed in Chapter IV of this study.
5. It is recommended that the present Kano State educational resource center should be expanded to include materials, equipment, teaching aids that are necessary for educating the visually impaired. The resource center should also contain a recording studio for the production of talking books and a braille press.
6. It is recommended that the resource center should provide in-service courses to upgrade teachers' skills and knowledge and make them aware of current developments in education for the visually impaired.
7. It is recommended that Kano State polytechnic and/or Advanced Teachers' Colleges should provide summer courses that will equip the regular vocational education teacher to teach the visually impaired individuals who might be in his/her class.

8. It is recommended that the visually impaired be mainstreamed in academic courses, but be separated in prevocational and vocational education programs, because of the theoretical and practical implications in teaching the visually impaired in such programs. These theoretical and practical implications were discussed on pages 161 to 165.

9. It is recommended that special classrooms and workshops be established in the regular schools to accommodate such programs proposed in this study. Teachers of visually impaired students are to be located at specific junior high and senior high schools to provide needed special instruction.

10. It is recommended in the proposed program that visually impaired students attend regular academic classes. They also should attend a resource room for as much specialized assistance as is necessary to meet the needs of such pupils on a daily basis. Program planning in the resource room should be highly individualized and very flexible. Specialized equipment used in the resource room should include large print and braille books, dictionaries, encyclopedias, recorded materials, large print typewriters, braille writers, low vision aids, including illuminated magnifiers, closed circuit television systems and other aids.

Other Recommendations

11. It is recommended that the existing laboratories and workshops in secondary schools should be modernized to accommodate the visually impaired. The unit and comprehensive workshops should be converted to multiple activities workshops.
12. It is recommended that the Federal and State governments should continue with implementation of the 1949 recommendation as well as the recommendation of the implementation committee for the National Policy on Education.
13. It is recommended that a follow-up study be made of those students who complete the recommended program to ascertain the usefulness, viability, success or failure of the program, as well as its strengths and weaknesses. This will help Ministry of Education officials to decide whether or not to continue the program, modify it, or abandon it.

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Ohio State School for the Blind. Course offering handbook. Ohio: Career Education Department, 1980.

Paaske, V. Five different types of educational systems for the blind children: a report of a seminar on special education for the blind children. August 25 to September 27, 1969. Denmark; Paris: UNESCO, 1969, Chapter II, pp. 89-93.

Ward, B.A. Curriculum guide Long Beach Unified School District. California: California Special Education Department, 1981.

APPENDIX A

LIST OF THE NAMES AND ADDRESSES OF THE NINE STATE DIRECTORS INVOLVED IN THE RESEARCH AS WELL AS A COPY OF THE LETTER THAT WAS MAILED TO THE STATE DIRECTORS

DEPARTMENT OF INDUSTRIAL
AND VOCATIONAL EDUCATION
FACULTY OF EDUCATION
THE UNIVERSITY OF ALBERTA

Dear Sir:

I am a graduate student, enrolled in the Master's degree program at the above university. A part of the requirement for this degree calls for the completion of a thesis.

My thesis proposal is to develop a vocational education program for the visually handicapped at the secondary school level, for Kano State, Nigeria.

Part of the research design calls for the researcher to identify five outstanding institutions that are known to specialize in offering vocational education program for the visually handicapped in a few selected states, of the United States of America. Your state is among the selected states for the research study.

The purpose of this letter is to request your assistance in helping me to identify names and addresses of five leading institutions in your state where outstanding vocational education program for the visually handicapped at the secondary school level is offered.

The information that is made available to me will be used only for the purpose of this study.

Yours truly,

Maigari Musa
c/o Dr. J.E. Gallagher

MM/jl

645 EDUCATION SOUTH, EDMONTON, ALBERTA, CANADA • T6G 2G5 • TELEPHONE (403) 432-3678

Names and addresses of State Directors serving the Visually Impaired contacted in this research.

I. Mr. Leslie Brinegar, Director
Department of Education
Office of Special Education
72I Capitol Mall
Sacramento, California 958I4

2. Mr. Donovan S. Jones,
Vision Consultant,
Bureau of Education for Exceptional Students
Department of Education
204 Knott Building
Tallahassee, Florida

3. Dr. Bill K. Tilley,
Assistant Superintendent
Illinois Office of Education
Department of Specialized Educational Services
I00 North First Street
Springfield, Illinois 62777

4. Dr. John W. Porter, Superintendent of Public Instruction
Ms. Arselia Schler Ensign, Ph.D.,
Special Education Consultant
Michigan Department of Education
Bureau of Educational Services
P.O. Box 30008
Lansing, Michigan 48909

5. Mr. James Richardson
Director of Special Education
Bureau of Special Education and Pupil Personnel Services
225 West State Street
Trenton, New Jersey 08625

6. Ms. Bernice M. Kipfer,
Assistant Commissioner
Education Department, Office for Education of Children with Handicapping Conditions
Albany, New York I2234

7. Mr. S. J. Bonham, Jr., Director
Ohio Department of Education,
Division of Special Education
733 High Street
Worthington, Ohio 43085

8. Mr. Williams F. Ohrtman, Chief,
Division of Programs and Services
Bureau of Special and Compenstory Education
Department of Education
Box 9II
Harrisburg, Pennsylvania I7I26

9. Mr. Don L. Partridge, Associate Commissioner for Special Education
Texas Education Agency
20I East Eleventh Street
Austin, Texas 7870I

APPENDIX B

A COPY OF THE LETTER SENT TO THE ADMINISTRATORS OF
INSTITUTIONS, WHERE A PRE-VOCATIONAL/
VOCATIONAL EDUCATION PROGRAM ARE OFFERED
AT THE SECONDARY SCHOOL LEVEL AND A LIST
OF NAMES AND ADDRESSES OF THESE ADMINISTRATORS

DEPARTMENT OF INDUSTRIAL
AND VOCATIONAL EDUCATION
FACULTY OF EDUCATION
THE UNIVERSITY OF ALBERTA

I am a native Nigerian, studying at the University of Alberta; my position and future responsibilities in Nigeria will encompass curriculum supervision and designing for visually handicapped in Kano State, Nigeria.

As a graduate student, enrolled in the Master's Degree program at the above university, a part of the requirements for this degree calls for the completion of a thesis.

My thesis proposal is to develop a pre-vocational education program for the visually handicapped at the secondary school level, for Kano State, Nigeria.

Part of the research design calls for the researcher to contact administrators of selected schools in your state that offer pre-vocational/vocational and academic programs for the visually handicapped at the secondary school level. Your name and the name of your school District was recommended by Mr. Leslie Brinegar - Administrator Consultant Services, North.

The purpose of this letter is to seek your cooperation in the research by furnishing me with the following curriculum materials: programs of studies, course description, course outline or syllabus for both academic and prevocational/vocational course(s) that are used with the visually impaired at present in your school. These curriculum materials will be used by me to design a pre-vocational education program for Kano State, Nigeria, that will be the result of this study.

....2

At present there is no such program in Nigeria. A booklet or any brochure and, if possible, photographs concerning the preparation of visually handicapped for vocational education at your secondary level will be of help to me in designing this program.

Because of the time limit that is imposed by the University, for this research, it will be appreciated if you could supply any of the requested curriculum materials to me not later than May 31, 1981.

The information that is made available to me will be used only for the purpose of this study. I thank you for any consideration you may give my request.

Yours truly,

Maigari Musa

MM/jl
c/o Dr. H.R. Ziel

1. Ms. Gertrude McDonald
Administrator, Special Education
Fremont Unitified School District
40775 Fremont Boulevard
FREMONT, CA 94538

2. Al Casler
Asst. Director, Special Education
Los Angeles Unified School District
450 North Grand Avenue
P.O. Box 3307, Terminal Annex
LOS ANGELES, CA 90051

3. Jack L. Schuetz
Director, General Services and Career Training Center
Kern Union High School District
2000 - 24th Street
BARSFIELD, CA 93301

4. Ms. Gloria Morrisey
Asst. Director, Special Education
Long Beach Unified School District
701 Locust Avenue
LONG BEACH, CA 90813

5. Bob Calhoun, Supervisor
Handicapped Programs
San Diego City Unified School District
4100 Normal Street
SAN DIEGO, CA 92103

6. Jim Esterle, Principal
Frances Blend School
5210 Clinton Street
LOS ANGELES, CA 90004

7. Robert McMullen, Assistant Superintendent
California School for the Blind
500 Walnut
FREMONT, CA 94536

8. Doug Waterman, Vocational Specialist
Sacramento City Unified School District
Vocational Education
P.O. Box 2271
SACRAMENTO, CA 95610

9. Ron Turner, Coordinator
Self-Reliance Institute
Sacramento Society for the Blind
2750 - 24th Street
SACRAMENTO, CA 95818

10. Dr. Richard Umsted, Superintendent
Illinois School for the Visually Impaired
658 East State Street
JACKSONVILLE, Illinois 62650

11. Mr. John Fagan, Supervisor
Secondary Programs
Commission for the Blind
1100 Raymond Blvd.
NEWARK, New Jersey

12. Harold G. Roberts, Executive Director
Hellen Keller International
22 West 17th Street, New York, NY 10011

13. Charles C. Woodcock, Director
Parkins School for the Blind
175 North Beacon Street
WATERTOWN, Massachusetts, 02172

14. W.S. Davis, Principal
Department for the Blind
Florida School for the Deaf and the Blind
St. AUGUSTINE, Florida 32304

15. Dorothy M. Halligan, Principal
New York State School for the Blind
Richmond Avenue
BATAVIA, New York 14020

16. Dennis L. Holmes, Superintendent
Ohio State School for the Blind
5220 North High Street
COLUMBUS, Ohio 43214

17. William H. Miller, Superintendent
Texas School for the Blind
1100 West 45th Street
AUSTIN, Texas 78756

18. E.I. Mills, Jr. Executive Director
San Antonio Association for the Blind
2305 Roosevelt Avenue
P.O. Box 10230
SAN ANTONIO, Texas 78210

19. Edwin W. Martin, Ph.D. Deputy Commissioner
Bureau of Education for the Handicapped
2100 - Regional Office Bldg., #3
WASHINGTON, D.C. 20202

20. Wallace K. Buomgton, Director
Office for Handicapped Individuals
330C Street, S.W.
WASHINGTON, D.C. 20201

21. Mr. Richard L. Welsh, Superintendent
Maryland School for the Blind
3501 Taylor Avenue
BALTIMORE, Maryland 21236

22. Frank S. Penland, President
Hadley School for the Blind
700 Elm Street
WINNETKA, Illinois 60093

23. Jim Freeman, Executive Director
Waco Lighthouse for the Blind
700 South Fifteenth
WACO, Texas 76706

24. Roger C. Walker, Director
New York Institute for the Education of the Blind
999 Pelham Parkway
BRONX, New York 10469

25. National Center for Research in Vocational Education
Ohio State University
1960 Kennedy Road
COLUMBUS, Ohio

26. Mr. Beatrice Carmichael
New Mexico School for the Visually Handicapped
ALAMAGORDO, N. Mex. 88310

27. Fred McDonald, Executive Director
Chicago Lighthouse for the Blind
1850 West Roosevelt
CHICAGO, Illinois 60608

28. H. Ben-Amor, Director
UNSCO - Office of Statistics
7, Place de Fonterroy 75700 Paris

29. The Director
Nigerian National Advisory Council for the Blind
Federal Ministry of Social Development, Youth and Sports
5 Kofo Abayomi Road
VICTORIA ISLAND, LAGOS, Nigeria

30. The Principal
Bida Blind Center
c/o Social Welfare Office
BIDO, Niger State, Nigeria

APPENDIX C

SUMMARY OF STATISTICS OF EDUCATIONAL INSTITUTIONS, PUPILS, AND ENROLMENT AT PRIMARY AND POST-PRIMARY EDUCATION IN THE YEAR 1975/76 IN KANO STATE OF NIGERIA.

Table 2. 32 SUMMARY OF STATISTICS OF EDUCATIONAL INSTITUTIONS 1975/76

TYPE OF INSTITUTIONS	NUMBER OF SCHOOLS	NUMBER OF CLASSES	ENROLMENT MALE	ENROLMENT FEM.	ENROLMENT TOTAL	TEACHERS Male	TEACHERS Fem	TEACHERS TOTAL
Primary Schools	678	4474	121740	38600	160340	5516	573	6089
Secondary Grammar School	19	206	5600	1188	6788	316	73	389
Commercial College	1	19	440	254	694	23	7	30
Teachers College	18	240	7750	694	8444	284	101	385
Technical / Vocational Institutions	3	23	1090	-	1090	45	2	47
S.A.S. Higher Muslim Studies Section	-	6	219	-	219	-	-	-
I.S.T.C. One Year Conversion Course	-	7	198	12	210	-	-	-
Advanced Teachers College, Kano	1	-	1017	196	1213	47	7	54

Table 2.33 POST PRIMARY EDUCATION SUMMARY OF ENROLMENT BY TYPE OF INSTITUTION 1968-1975/76.

TYPE OF INST.	1968			1969			1970			1971			1972			1973			1973/74			1974/75			1975/76		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
SECONDARY GRAMMAR SCHOOLS	1418	610	2028	1570	562	2132	2365	667	3032	3112	674	3786	3743	698	4441	4317	800	5117	4850	918	5768	5276	986	6262	5600	1188	6788
COMMERCIAL COLLEGE	139	17	156	196	18	214	266	74	340	327	100	427	328	151	479	378	215	593	324	243	567	436	252	688	440	254	694
TEACHERS COLLEGE	1156	265	1421	1676	246	1922	2100	252	2352	3006	290	3296	3292	313	3605	3624	378	4002	4045	416	4461	4689	482	5171	7750	694	8444
TECHNICAL VOCATIONAL INSTITUTION	494	-	494	529	-	529	542	-	542	594	-	594	659	-	659	575	-	575	578	-	578	676	-	676	1090	.	1090
TOTAL	3207	892	4099	3973	824	4797	5273	993	6266	70[illegible]	1064	8103	7922	1162	9084	8694	1393	10287	9797	1577	11374	11077	1720	12797	14880	2136	17016

Table 2.34

SUMMARY OF ENROLMENT - PRIMARY EDUCATION 1968-1975/76

	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		YEAR 6		YEAR 7		TOTAL		
YEAR	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	T
1968	6531	3279	6930	2949	4960	2255	4442	1545	3806	1222	3926	1126	5681	1088	36116	13464	49580
1969	7890	2922	7106	2485	6838	2384	5731	1944	4382	1491	4005	1172	4275	982	40255	13360	53615
1970	9774	4028	7812	2918	7134	2533	6857	2285	5654	2000	4592	1419	4041	1035	45864	16216	62080
1971	17942	7065	9912	3850	7822	2831	7094	2467	6768	2369	5842	1917	4417	1387	59598	21866	81464
1972	16887	6493	17541	6133	9616	3528	7714	2829	6950	2437	6681	2241	5669	1761	72058	25322	97380
1973	17289	5966	16944	5760	17441	3421	9514	3421	7619	2734	6875	2286	6489	1901	82151	27955	110106
1973/74	16209	5281	17677	5724	16837	5383	17161	5551	9415	3266	7405	2555	6715	2097	90419	29857	120276
1974/75	19674	6441	16384	5063	17695	5519	16759	5239	16547	5424	9043	3059	7171	2332	103273	33077	136350
1975/76	24478	8263	21368	6916	16335	4887	47839	5554	16566	5033	16340	5186	8816	2759	121740	38600	160340

POST PRIMARY EDUCATION: NUMBER OF SCHOOLS, CLASSES AND PUPILS IN POST PRIMARY INSTITUTIONS: AVERAGE NUMBER OF PUPILS PER SCHOOL, CLASS AND TEACHER

TYPE OF INSTITUTION	SCHOOLS	NUMBER OF: CLASSES	TEACHERS	PUPILS	AVERAGE NUMBER OF PUPILS PER: SCH.	CLASS	TEACHER
Sec. Grammar Schools	19	206	389	6788	35	33	17
Commercial College	1	19	30	694	694	37	23
Teachers College	18	240	385	8444	469	35	22
Technical/Vocational Institution	3	23	47	1090	363	47	23

Table 2.35

VITA

NAME: Maigari Abdullahi Musa

PLACE OF BIRTH: Kano, Nigeria

YEAR OF BIRTH: November 2nd, 1952

POST-SECONDARY EDUCATION AND DEGREES:

University of Alberta
Edmonton, Alberta, Canada
T6H 2E5 1980-1981 M. Ed.

McGill University
Montreal, Quebec, Canada 1978-1980 B. Ed.

College - Kaduna Polytechnic
1972-1975 N.C.E.